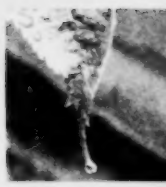

reliable, quality water supplies
for a sustainable economy

Provincial Inventory of Potential Water Storage Sites and Diversion Scenarios (September 2005)

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PROVINCIAL INVENTORY OF POTENTIAL WATER STORAGE SITES AND DIVERSION SCENARIOS

Final Report

(2120-042-00)

Prepared for:

Alberta Environment

PERMIT TO PRACTICE
MPE ENGINEERING LTD.
PERMIT NUMBER: P 3680
The Association of Professional Engineers, Geologists and Geophysicists of Alberta

Prepared by:

MPE Engineering Ltd.

September 2005

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September 23, 2005
File:N:\21\20\042\00\L02-1.0

Attn: Mr. Garry Bucharski
Capital Planning Section Head

Dear Mr. Bucharski;

Re: Provincial Inventory of Potential Water Storage Sites and Diversion Scenarios

MPE Engineering Ltd. is pleased to provide Alberta Environment the attached Final Report for the above mentioned study. Thank you for the opportunity to undertake this study and we look forward to working with Alberta Environment on future projects.

If you require further information, please contact the undersigned at 219-6456.

Yours truly,

MPE ENGINEERING LTD.

Harry Schoorlemmer, P.Eng.
Project Manager

HS/db
Attachment

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ACKNOWLEDGEMENTS

Various outside parties provided much research assistance in the data collection stage of this inventory. We acknowledge the cooperation and assistance of the following:

Alberta Environment (AENV); Edmonton, Calgary and Lethbridge
Irrigation Branch, Alberta Agriculture Food & Rural Development, Lethbridge
Irrigation Secretariat, Lethbridge
Prairie Farm Rehabilitation Administration (PFRA); Calgary, Regina
Walter Nemanishen, Retired PFRA
National Archives, Edmonton
Alberta Infrastructure and Transportation, Edmonton
Acres International Ltd.
Western Irrigation District, Strathmore
Eastern Irrigation District, Brooks
St. Mary River Irrigation District, Lethbridge
Bow River Irrigation District, Vauxhall
Ducks Unlimited Canada, Camrose
TransAlta Utilities

1.0 INTRODUCTION

This study to inventory previously identified, potential water storage sites and diversion systems in the province was implemented by Alberta Environment (AENV) to address "Reliable, quality water supplies for a sustainable economy" as part of the provincial "Water for Life Strategy". The study was awarded to MPE Engineering Ltd. in October 2004.

2.0 SCOPE OF WORK

2.1 General

The terms of reference for the inventory required that a "complete inventory of potential reservoir/water storage sites and conveyance systems" be made. The inventory was based on a literature review of previous studies that identified potential sites and no site investigations were conducted. The literature review included Provincial Government departments, PFRA, utilities, local authorities, Irrigation Districts, Ducks Unlimited and files of individuals involved in the water resource field.

Conveyance systems for inter-basin transfers were included in the inventory. AENV recognizes that inter-basin transfers are prohibited by legislation but these were to be inventoried as "this study is intended to summarize historical information…". The terms of reference also required that a provincial map identifying the location of the potential water storage and diversion sites be prepared.

2.2 Specific Requirements

AENV requested that the following specific information be inventoried:

i) Purpose and description of the project.
ii) Location and contour plans of the proposal.

iii) Summary of embankment characteristics including height, side slopes, and crest length.

iv) Summary of the proposed hydraulic structures including design discharge and physical dimensions.

v) Reservoir parameters including Full Supply Level, flooded area and storage volume.

vi) Summary of diversion canals, including location, purpose, dimensions and capacity.

vii) Summary of historical cost estimates for each proposal, including the year the estimate was made.

viii) Summary of available hydrology used for the proposal.

ix) Summary of previous site investigations conducted.

x) Summary of any licensing information that may be available.

In addition to this information it was agreed at the workshop described in Section 3.0 that the following guidelines for inventorying projects were to be followed:

i) Minimum storage requirement is 1000 dam^3.

ii) Diversion schemes with capacities of 1.0 m^3/s or greater to be included.

iii) Storage sites downstream of existing developed sites are to be included, where the potential reservoir does not impact on an existing dam.

It was also agreed that:

i) The cost estimates of projects were not to be escalated to current dollars.

ii) Potential sites submerged by existing reservoirs would not be inventoried.

iii) The most recent study found would be used for the inventory of a particular site.

iv) The option with the greatest potential storage would be inventoried at sites identified with alternative potential storages. (Some reports indicated that the

largest storage alternative was not feasible or not recommended; therefore, in these cases, a smaller storage alternative was selected for the inventory).

3.0 INVENTORY FORMAT

3.1 Data Processing

A "database" methodology had been proposed by MPE Engineering Ltd. to serve as the base method for inventory and storage of the data. This method was adopted as it had the following benefits.

i) Ease of data entry.
ii) Consistent data entry.
iii) Data can be easily summarized and retrieved.
iv) Data can be easily sorted and filtered.
v) Data can be easily imported into GIS software.
vi) Database can be put onto either internal servers or a web site for easy remote access.
vii) Database can be expanded as additional projects are either found or studied.

To maximize the benefit of the database to the stakeholders, a workshop was convened with the AENV stakeholders, early in the study process. This was done to gain their input into its development. Subsequent to this workshop the database and data report formats were developed within the capability of the *Microsoft Access* software.

The database has also been structured to include key drawings (where available) depicting the general arrangement of the project and key infrastructure. The drawings have been scanned and stored electronically in "pdf" format. The database has been set up with a link to the drawing files to enable viewing from within the database.

3.2 Mapping

The input to the database includes the legal land location as well as the project's latitude and longitude. This information was used to locate the potential projects on river basin maps of Alberta provided by AENV (see Appendix C). The maps are saved in *AutoCAD 2000* format to enable importation into GIS software. The 10 principal river basins commonly used by AENV were selected for the primary location identification of a project within the database. These river basins are:

1. Athabasca
2. Beaver
3. Bow
4. Hay
5. Milk
6. North Saskatchewan
7. Oldman
8. Peace / Slave
9. Red Deer
10. South Saskatchewan

The river basins have also been combined into one master map of Alberta. 72 existing crown owned storage and diversion site locations have been added to these maps. 26 non-crown sites have been included as well, however, many more sites would need to be added in the future if AENV requires all existing sites to be shown on the maps. Locating existing sites was not within the project scope of work.

The hard copy maps included in this report do not display all the information that is available in the electronic file due to clarity of presentation. Appendix C summarizes the mapping information available in the electronic format.

4.0 INVENTORY OF POTENTIAL STORAGE / DIVERSION SITES

4.1 Data Sources

The primary sources of data were existing reports and project files. The cooperation of the various offices of AENV, Alberta Infrastructure and Transportation (INFTRA), Alberta Agriculture Food and Rural Development (AAFRD), Prairie Farm Rehabilitation Administration (PFRA), TransAlta (TA), Ducks Unlimited (DU), Irrigation Districts, local authorities and water resource consulting firms was excellent. In spite of this excellent cooperation, data collection proved to be challenging as many libraries and files were incomplete for various reasons. The most common issues for the larger government departments revolved around the many reorganizations of the departments that have taken place and the related moving and storage of reports and libraries. This led to considerable time requirement to track reports and, in some cases, although studies were known to have been done, reports could not be found.

In the case of PFRA, their related files have been put in storage in either Regina or Edmonton. An attempt was made to uncover the reports in the Edmonton archives with limited success. A retired PFRA engineer was retained to review a listing of PFRA files and projects. This was helpful in identifying projects that could be of interest for the inventory. Based on this review and a review of the inventoried projects it was concluded the significant PFRA projects that would be of interest, had likely been inventoried. Consequently a trip to the Regina office was determined to be unwarranted at this time.

Ducks Unlimited have studied many wetland type storage projects. These projects tend to be small and are specifically targeted at wetland development. DU files are located in their regional offices throughout Alberta. Their methodology for initial investigation of potential wetland sites is quite limited and usually the findings are recorded on 3 or 4 pages. DU was very cooperative and reviewed their files in the Camrose office and forwarded over 60 files of potential interest to MPE for review. Upon review it was

determined that only one of the projects qualified for the inventory. On this basis, it was concluded that the expense of further investigations into the DU files in other offices was not warranted at this time.

The recent Milk River Dam study undertaken by AENV, is not included in the database inventory, but rather studies in the area completed much earlier are in the inventory. This approach was necessary as the recent study is not available to the public at this time. The database can be updated when the report is released.

A general mail-out was made to local authorities across Alberta requesting information of potential storage sites. A few replies were received but for the most part the few projects identified did not qualify for the inventory. The most interest by local authorities in the inventory project, originated from Southern Alberta.

The source location of the data inventoried is given in the database to enable researchers to locate the data background in the future.

4.2 Data Quality

The quality of the data varies considerably and is very dependent on the study effort at the time and documentation that could be found. Often the data is incomplete or conflicting, as further studies were completed at a particular site. Also, some sites have been identified by more than one name. The most recent reports were used, but on occasion these were not found until after earlier reports had been used for the inventory. For the most part where duplication was found, the earlier reports were removed from the database.

The documentation of small storage sites with as little as 1000 dam^3 is not very good. Consequently the number of small storage projects included in this inventory is limited.

4.3 Inventory Summary

4.3.1 Use of Database

Appendix A contains a summary of the inventory format and description of the data inputs as to purpose and function. A description of how the database can be used is also provided. This includes how to add new projects as well as describing the types of data searches within the database, that can be undertaken and the report formats that are produced.

4.3.2 Inventoried Projects

A total of 238 projects, consisting of both storage and diversion have been inventoried. In some cases, particularly related to multiple diversion projects, components of the project have been inventoried separately and must be combined together to obtain the information on the complete project. This applies particularly to projects that divert water from one watershed to another with a further diversion to a third watershed.

A summary listing of all the inventoried projects is contained in Appendix B. The enclosed disk includes the entire database, the associated electronic drawing files and the provincial river basin maps with the site locations identified.

5.0 SUMMARY AND RECOMMENDATIONS

The inventory completed is an exhaustive inventory of potential storage and conveyance sites; however, it cannot be considered "complete". Based on the experience of the consultant team, it is known that other sites have been identified, but documentation of these sites has not been uncovered to date. Therefore, this inventory should be considered to be a "live" database with projects added to it as either the documentation is found or new studies are undertaken.

In particular there are likely many more small storage sites that would meet the minimum 1000 dam^3 criteria but which have not been documented to the point that files can be found. Therefore, to obtain this type of data and record it, it is recommended that key agencies that might investigate the potential for sites of this size, be kept aware of this inventory. These agencies should be encouraged to submit their findings to AENV for inclusion of the qualifying projects in the database.

This database should prove to be a valuable source of data to planners to assist in the process of water management, particularly for supply management, as the demand for water grows and climate change impacts occur in the years ahead.

APPENDIX A

A.1 System Requirements

The database was created using *Microsoft Access 2000*, which is required to view or edit the inventory. The electronic drawings are in "pdf" format, which requires *Adobe Acrobat Reader* to view. The database and electronic drawings must be copied onto a hard drive with the database ***not*** set as "read-only" to enable full functionality. The database and the electronic drawings folder must be stored in the same directory to enable viewing of the drawings from within the database. The electronic drawings folder must be named "PDF Drawings".

A.2 Project Inventory – Main Form

The database opens to the Main Form, which provides options to proceed. See Figure A-1. An icon at the top of the form facilitates entering new projects.

The "Search Options" allow the user to search for specific projects or groups of projects by project name keyword or by category. The keyword can be multiple words but must be a single character string, as the database will search for that exact character string. The category search can be executed by specifying one or more of "Project Type", "River Basin", "Client/Owner" and "Constituency".

An abbreviated preview list of the current search appears when the search is executed. Clicking the box to the left of the project name will select the project. The user can then select "View Project" or "Edit Project" to open the Data View Form or Edit Form, which are described in Section A.3 below.

The "Reports" section of the form provides some options for printing inventoried project information. The "Search Result Summary" icon provides a list of projects. The "Search

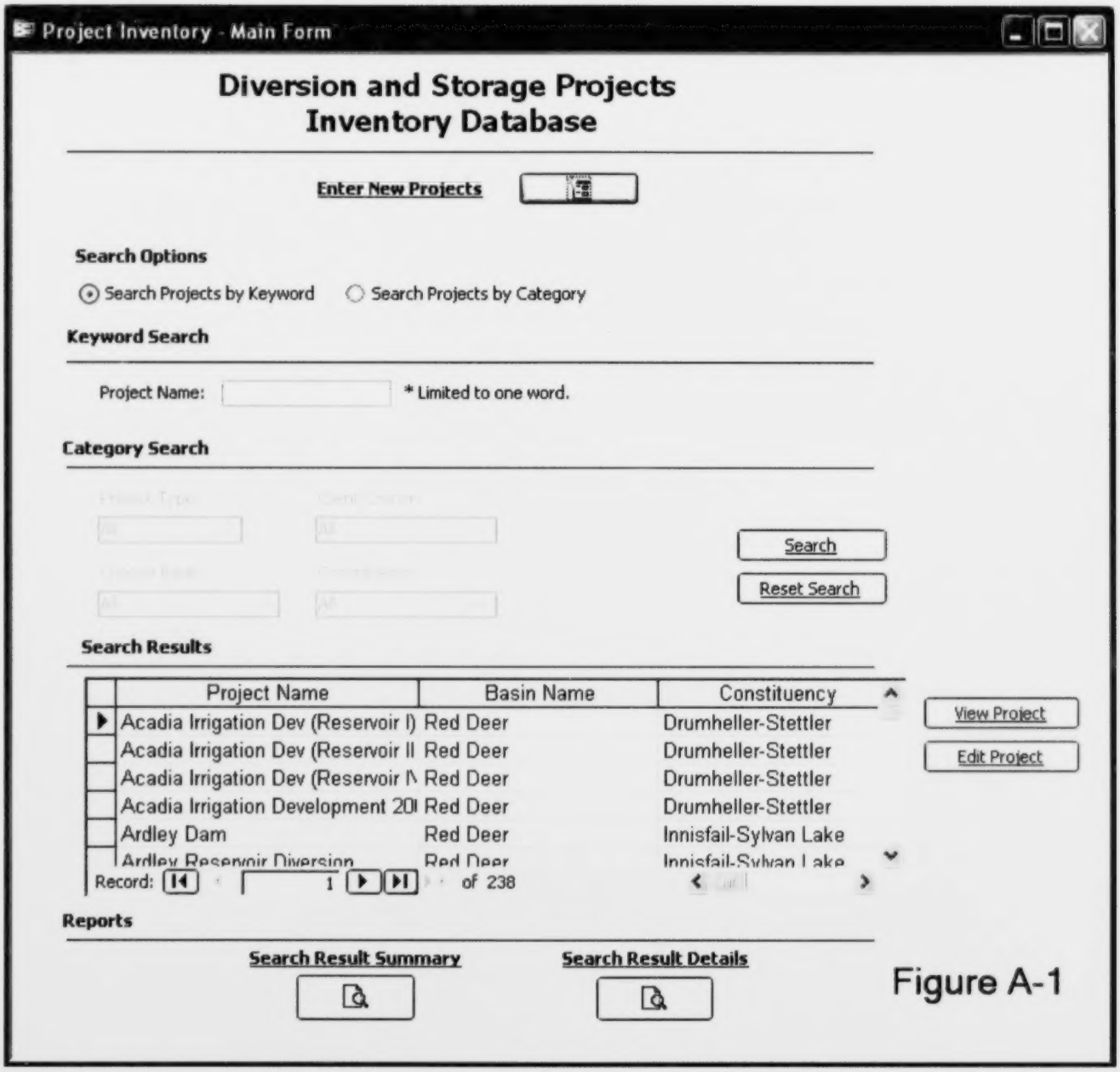
Project Inventory - Main Form
Diversion and Storage Projects
Inventory Database
Enter New Projects
Search Options
Search Projects by Keyword
Search Projects by Category
Keyword Search
Project Name:
* Limited to one word.
Category Search
Search
Reset Search
Search Results
Project Name
Basin Name
Constituency
Acadia Irrigation Dev (Reservoir I) Red Deer Drumheller-Stettler
Acadia Irrigation Dev (Reservoir II Red Deer Drumheller-Stettler
Acadia Irrigation Dev (Reservoir I\ Red Deer Drumheller-Stettler
Acadia Irrigation Development 20I Red Deer Drumheller-Stettler
Ardley Dam Red Deer Innisfail-Sylvan Lake
Ardley Reservoir Diversion Red Deer Innisfail-Sylvan Lake
Record: 1 of 238
View Project
Edit Project
Reports
Search Result Summary
Search Result Details

Figure A-1

Result Details" icon provides a complete printout of all project information. Clicking one of the print icons opens a print preview screen from which printing can be executed.

A.3 Data View and Edit Forms

Upon selection of one of the "View Project" or "Edit Project" options from the Project Inventory – Main Form, the database will open the Data View or Data Edit Form (see Figure A-2). The Data Edit Form is the same form as the Data View Form, with the only difference being the ability to make changes to the data. A blank data entry form will open if the user is entering a new project. These forms contain all the data for each inventoried project.

Each project is referred to as a "Record" in *Microsoft Access*. In the bottom left corner of the form, the number of records (projects) is indicated and the adjacent arrows can be clicked to navigate through the records.

The Data View / Edit Form is split into the four sub-forms "Project Information – Main", "Project Details – Page 1", "Project Details – Page 2", and "Drawings" as indicated by the tabs at the top of the form.

Help boxes appear when the cursor arrow is moved over the various data entry fields. "Drop down" lists are provided for many of the data entry fields. Typed data will also "auto complete" from the selections in the "drop down" list. In many fields, the user also has the option to type in custom information. However, this should be avoided for any fields that are included in the "category search" options in the Main Form, because the project would be excluded from search results.

A print icon on the right side of the form facilitates printing all data of the currently viewed record (project). An example printout of one project is included at the end of Appendix A.

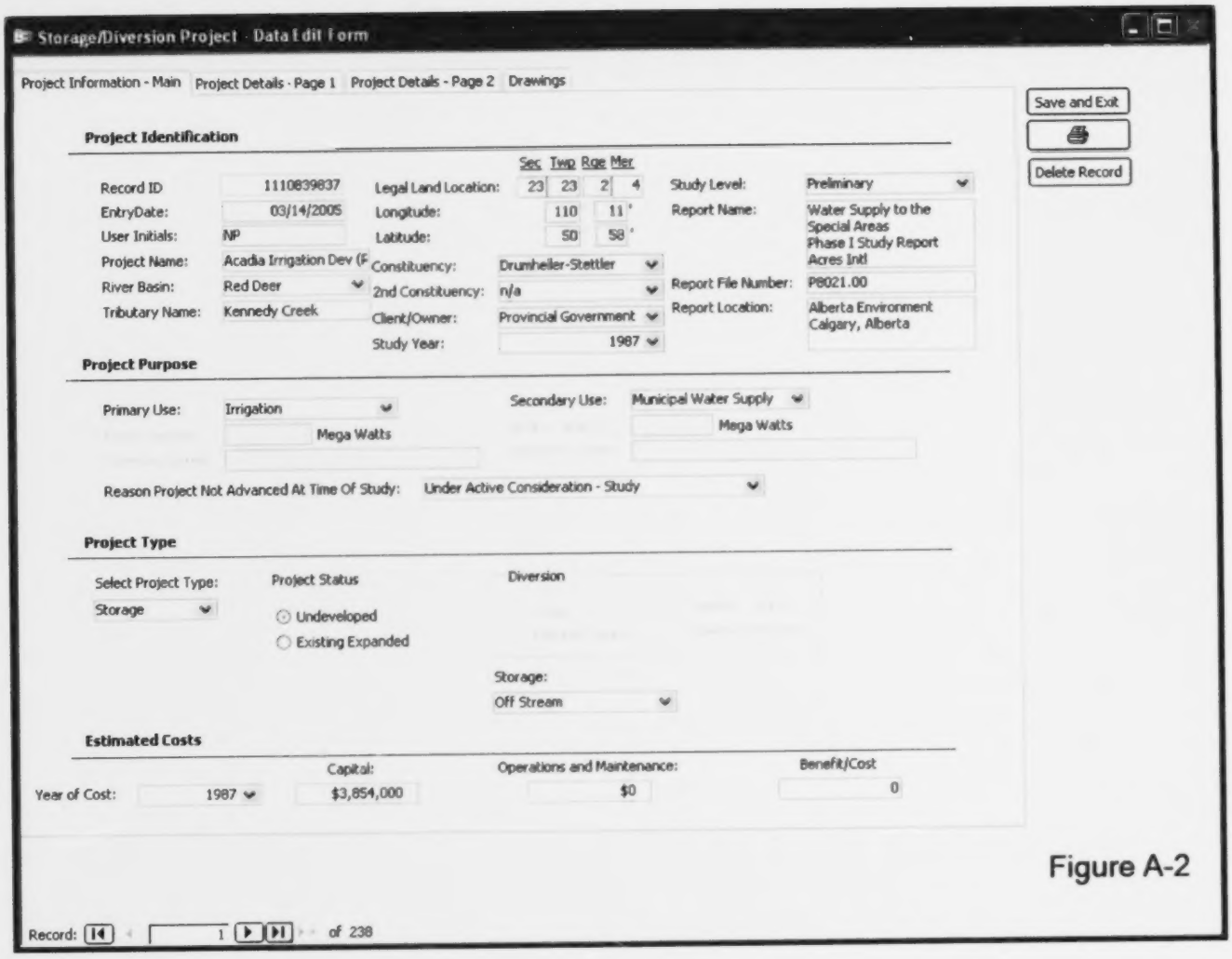
Storage/Diversion Project - Data Edit Form
Project Information - Main
Project Details - Page 1
Project Details - Page 2
Drawings
Save and Exit
Delete Record
Project Identification
Record ID
1110839837
EntryDate:
03/14/2005
User Initials:
NP
Project Name:
Acadia Irrigation Dev (F
River Basin:
Red Deer
Tributary Name:
Kennedy Creek
Legal Land Location:
Sec Twp Rge Mer
23 23 2 4
Longitude:
110 11 '
Latitude:
50 58 '
Constituency:
Drumheller-Stettler
2nd Constituency:
n/a
Client/Owner:
Provincial Government
Study Year:
1987
Study Level:
Preliminary
Report Name:
Water Supply to the Special Areas Phase I Study Report Acres Intl
Report File Number:
P8021.00
Report Location:
Alberta Environment Calgary, Alberta
Project Purpose
Primary Use:
Irrigation
Mega Watts
Secondary Use:
Municipal Water Supply
Mega Watts
Reason Project Not Advanced At Time Of Study:
Under Active Consideration - Study
Project Type
Select Project Type:
Storage
Project Status
Undeveloped
Existing Expanded
Diversion
Storage:
Off Stream
Estimated Costs
Year of Cost:
1987
Capital:
$3,854,000
Operations and Maintenance:
$0
Benefit/Cost
0
Record:
1
of 238

Figure A-2

A.3.1 Sub-Form: "Project Information – Main" (refer to Figure A-2)

The "Project Identification" section of the form provides general information such as data entry date, user, project name, river basin, site location, owner of report, study year, study level, and report name and location. The land location is typically the damsite or main body of the reservoir for storage projects, and the diversion point for diversion projects. Locations were estimated in cases where the information did not indicate an exact location.

The "Project Purpose" section of the form provides the intended use information and the reason why the project was not advanced at the time of the study.

The "Project Type" section of the form indicates project type (storage or diversion), project status (undeveloped site or expansion of an existing site), and general information about the type of diversion or storage project.

The "Estimated Costs" section of the form contains capital cost, operation and maintenance costs, benefit/cost ratio and year of cost estimate.

A.3.2 Sub-Form: "Project Details – Page 1" (refer to Figure A-3)

The "Dams" section of the form provides information such as the number of dams and dykes, the dam fill type and whether the proposed dam would be new or an existing raised dam. Length and height of dam as well as general comments are entered if information is available. The database handles multiple dam records to accommodate projects with several dams and/or dykes.

The "Spillways" and "Low Level/Riparian Outlet" sections of the form provide any available information such as spillway type, capacity and design event.

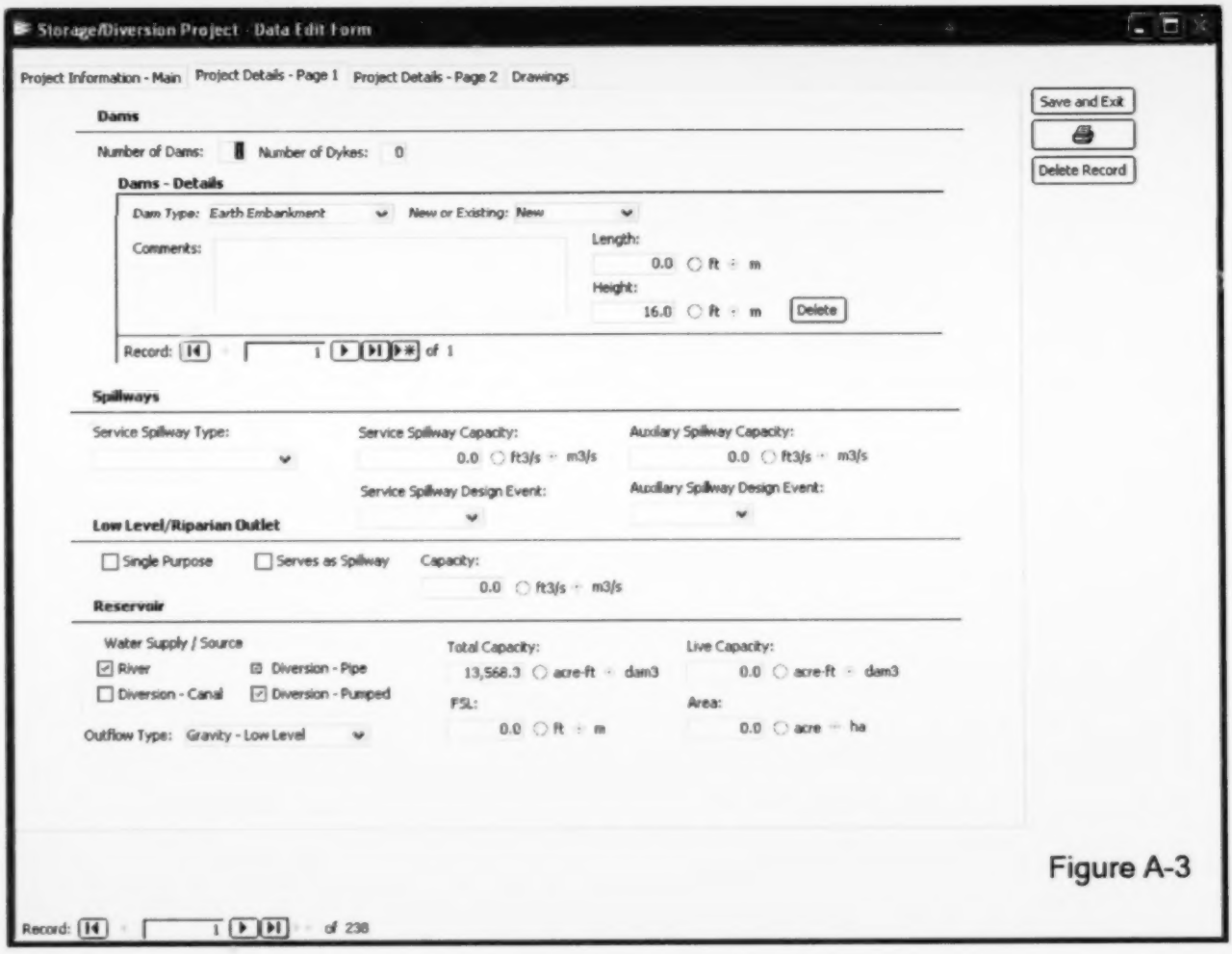
Storage/Diversion Project - Data Edit Form
Project Information - Main
Project Details - Page 1
Project Details - Page 2
Drawings
Save and Exit
Delete Record
Dams
Number of Dams: 1
Number of Dykes: 0
Dams - Details
Dam Type: Earth Embankment
New or Existing: New
Comments:
Length:
0.0 ft m
Height:
16.0 ft m
Delete
Record: 1 of 1
Spillways
Service Spillway Type:
Service Spillway Capacity:
0.0 ft3/s m3/s
Auxiliary Spillway Capacity:
0.0 ft3/s m3/s
Service Spillway Design Event:
Auxiliary Spillway Design Event:
Low Level/Riparian Outlet
Single Purpose
Serves as Spillway
Capacity:
0.0 ft3/s m3/s
Reservoir
Water Supply / Source
River
Diversion - Pipe
Diversion - Canal
Diversion - Pumped
Outflow Type: Gravity - Low Level
Total Capacity:
13,568.3 acre-ft dam3
FSL:
0.0 ft m
Live Capacity:
0.0 acre-ft dam3
Area:
0.0 acre ha
Record: 1 of 238

Figure A-3

The "Reservoir" section of the form provides reservoir information such as water source, storage volume, surface area, full supply level (FSL) and outflow type.

A.3.3 Sub-Form: "Project Details – Page 2" (refer to Figure A-4)

The "Diversion Systems" section of the form provides diversion details such as number and type of diversions, number of pump stations, capacity, length and description of the diversion start and end. The database handles multiple diversion records to accommodate projects with several diversions from one source. A long complex diversion system may also be easily split into segments.

The "Impact Assessments" section of the form indicates whether environmental, sociological, historical, infrastructure or land ownership reviews were included in the report.

The "Site Investigations" and "Hydrology" sections of the form indicate the level of geotechnical, survey/mapping and hydrology completed in the report.

The "Licensing Information" section of the form indicates available information regarding water license status and application date, if applicable. No license information was found for any of the inventoried projects to date. This information can be entered into the database at a future date, if desired.

A.3.4 Sub-Form: "Drawings" (refer to Figure A-5)

The "Drawings Contained in Report" section of the form indicates the level of the drawings (i.e. conceptual, preliminary, etc.), if any exist.

The "Available Electronic Drawings" section of the form lists the drawings that have been scanned and are electronically linked to the database. These drawings can be

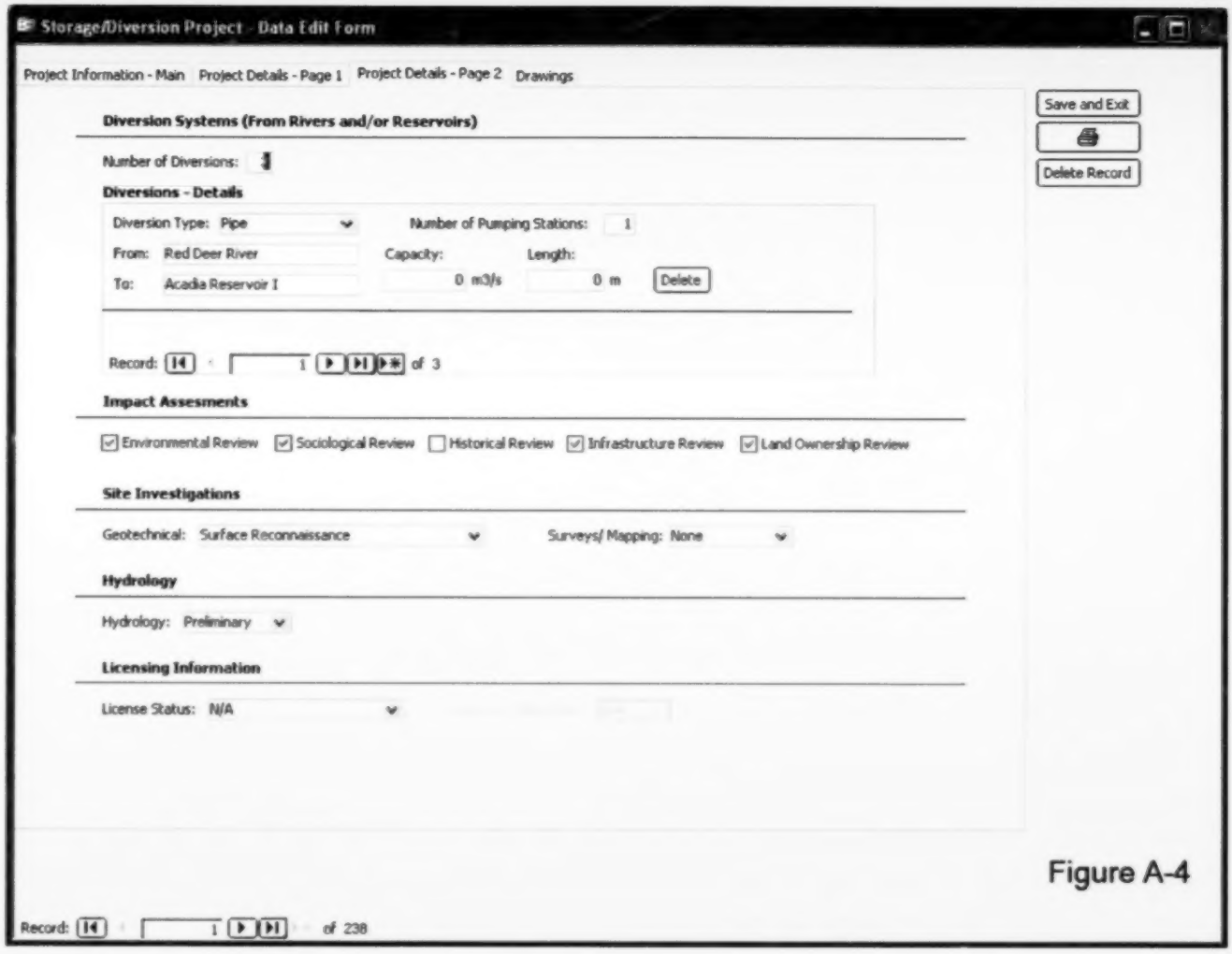
Storage/Diversion Project - Data Edit Form
Project Information - Main
Project Details - Page 1
Project Details - Page 2
Drawings
Save and Exit
Delete Record
Diversion Systems (From Rivers and/or Reservoirs)
Number of Diversions: 1
Diversions - Details
Diversion Type: Pipe
Number of Pumping Stations: 1
From: Red Deer River
Capacity:
Length:
To: Acadia Reservoir I
0 m3/s
0 m
Delete
Record: 1 of 3
Impact Assesments
Environmental Review
Sociological Review
Historical Review
Infrastructure Review
Land Ownership Review
Site Investigations
Geotechnical: Surface Reconnaissance
Surveys/ Mapping: None
Hydrology
Hydrology: Preliminary
Licensing Information
License Status: N/A
Record: 1 of 238

Figure A-4

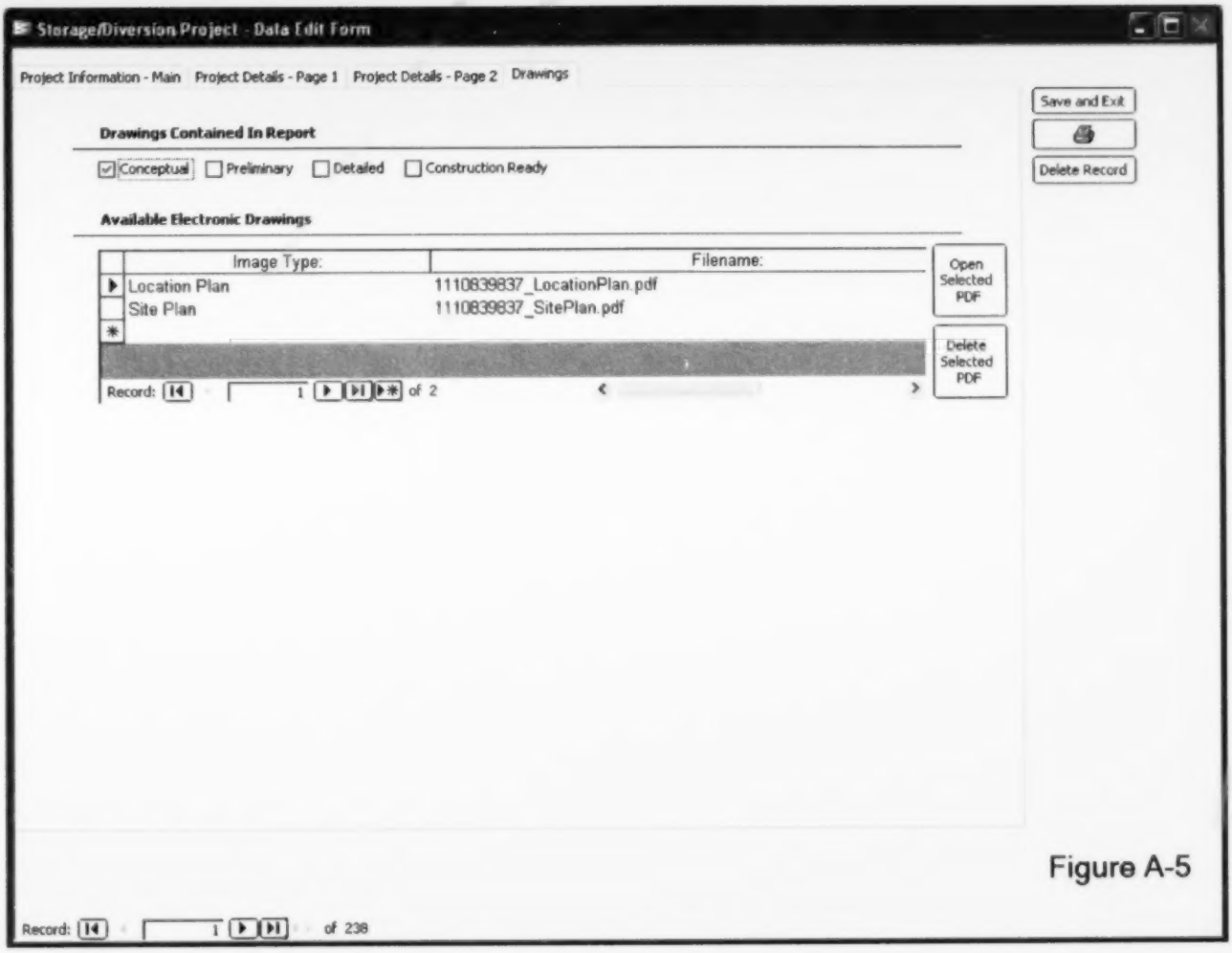
Storage/Diversion Project - Data Edit Form
Project Information - Main
Project Details - Page 1
Project Details - Page 2
Drawings
Save and Exit
Delete Record
Drawings Contained In Report
Conceptual
Preliminary
Detailed
Construction Ready
Available Electronic Drawings
Image Type:
Filename:
Location Plan
1110839837_LocationPlan.pdf
Site Plan
1110839837_SitePlan.pdf
Open Selected PDF
Delete Selected PDF
Record: 1 of 2
Record: 1 of 238

Figure A-5

viewed by selecting one, then clicking the "Open Selected PDF" icon. In a few projects, the entire report document has been included.

New electronic drawings can be added in the future by selecting a new "Image Type" from the drop-down list or by typing in a custom-named "Image Type". Upon completing this, the database will automatically assign a file name. The new file must have this exact file name and be stored in the "PDF Drawings" folder.

Project Printout Example

Acadia Irrigation Development 2005 - Scenario 3

Project Identification

Entry Date	05/24/2005	**Legal Land Location** (Sec: Twp: Rge: Mer:)	20 - 23 - 3 - 4
Project Name	Acadia Irrigation Development 2005 - Scenario 3	**Longitude**	110° 23'
Basin Name	Red Deer	**Latitude**	50° 59 '
Tributary Name		**Constituency**	Drumheller-Stettler
Report Name	MD of Acadia #34 Irrigation Development Study MPE, 2005	**2nd Constituency**	n/a
		Client/Owner	Municipal Government
		Study Year	2005
Report Location	MPE Engrg Calgary	**Study Level**	Feasiblility
		Report File Number	MPE #2280-001-00

Project Purpose

Primary Use	Irrigation	**Secondary Use**	Municipal Water Supply
Hydro Capacity (MW)		**Hydro Capacity (MW)**	
Diversion System		**Diversion System**	

Reason Project Not Advanced At Time Of Study: Under Active Consideration - Study

Project Type

Project Type	Storage	**Project Status**	Undeveloped
Diversion Types		**Storage Type**	Off Stream

Estimated Costs

Year	2004	**Capital**	$96,100,000
Operations And Maintenance	$2,860,000	**Cost Benefit**	0.95

Acadia Irrigation Development 2005 - Scenario 3

Dams

Number of Dams	2	**Number Of Dykes**	0

Dam Type	New or Existing	Height (m)	Length (m)	Comments
Earth Embankment	New	30.5	2100	East (Main) Dam
Earth Embankment	New	14.5	330	West Dam

Spillways

Service Spillway Type			
Service Spillway Capacity (m3/s)	0	**Auxilary Spillway Capacity (m3/s)**	0
Service Spillway Design Event		**Auxillary Spillway Design Event**	

Low Level / Riparian Outlet

Single Purpose	☑	**Capacity (m3/s)**	7.5
Serves as Spillway	☐		

Reservoir

Water Supply/ Source	River,Diversion - Pipe,Diversion - Pumped,		
Outflow Type	Gravity - Diversion		
Total Capacity (dam3)	22500	**FSL (m)**	728.5
Live Capacity (dam3)	17000	**Area (ha)**	219

Diversion System

Number of Diversions	3

Diversion Type	From	To	Number of Pumping Stations	Length (m)	Capacity (m3/s)
Pipe	Red Deer River	Reservoir A1	1	4800	4
Pipe	Reservoir A1	Secondary 'B' Pipeline System	0	0	1
Channel	Reservoir A1	Secondary 'A' Network	0	0	7.5

Acadia Irrigation Development 2005 - Scenario 3

Impact Assessments

Environmental Review	☑	Sociological Review	☑	Historical Review	☑
Infrastructure Review	☑	Land Ownership Review	☑		

Site Investigation

Geotechnical	Surface Reconnaissance	Surveys/ Mapping	Contour Maps
Hydrology	Preliminary		

Licensing Information

License Status	N/A	Application Filed Date	N/A

Drawings Contained in Report

Conceptual	☑	Preliminary	☐
Detailed	☐	Construction Ready	☐

Available Electronic Drawings

Image Type	Filename
Cross Section - Dam	4276979593_CrossSection-Dam.pdf
Cross Section - Outlets	4276979593_CrossSection-Outlets.pdf
Site Plan2	4276979593_SitePlan2.pdf
Site Plan1	4276979593_SitePlan1.pdf

Summary of Inventoried Projects

Map Ref #	Project Name	River Basin	Tributary Name	Sec	Twp	Rge	Mdn	Lat (Deg)	Lat (Min)	Long (Deg)	Long (Min)	Client/Owner	Study Year	Project Type	Storage Type	Status
1	Acadia Irrigation Dev (Reservoir I)	Red Deer	Kennedy Creek	23	23	2	4	50	58	110	11	Provincial Government	1987	Storage	Off Stream	Undeveloped
2	Acadia Irrigation Dev (Reservoir III)	Red Deer	Kennedy Creek	12	24	2	4	51	2	110	10	Provincial Government	1987	Storage	Off Stream	Undeveloped
3	Acadia Irrigation Dev (Reservoir IV)	Red Deer	Kennedy Creek	13	24	2	4	51	3	110	10	Provincial Government	1987	Storage	Off Stream	Undeveloped
4	Acadia Irrigation Development 2005 - Scenario 3	Red Deer		20	23	3	4	50	59	110	23	Municipal Government	2005	Storage	Off Stream	Undeveloped
5	Ardley Dam	Red Deer		29	38	23	4	52	18	113	15	Provincial Government	1967	Storage	On Stream	Undeveloped
6	Ardley Reservoir Diversion	Red Deer	Tail Creek	29	38	23	4	52	18	113	15	Provincial Government	1970	Diversion		Undeveloped
7	Athabasca - 19th Baseline Hydro Site	Athabasca		33	72	18	4	55	17	112	43	TransAlta	1955	Storage	On Stream	Undeveloped
8	Athabasca - Crooked Rapids Hydro Site	Athabasca		35	87	12	4	56	35	111	48	TransAlta	1963	Storage	On Stream	Undeveloped
9	Athabasca - Grand Rapids Hydro Site	Athabasca		34	84	17	4	56	20	112	36	TransAlta	1955	Storage	On Stream	Undeveloped
10	Athabasca - Mile 193 Hydro Site	Athabasca		11	87	17	4	56	32	112	36	TransAlta	1955	Storage	On Stream	Undeveloped
11	Athabasca - Mirror Hydro Site	Athabasca		33	66	23	4	54	45	113	25	TransAlta	1963	Storage	On Stream	Undeveloped
12	Athabasca - Mountain Rapids Hydro Site	Athabasca		33	88	10	4	56	41	111	32	TransAlta	1955	Storage	On Stream	Undeveloped
13	Athabasca - Oldman Dam	Athabasca	Oldman Creek	20	55	22	5	53	46	117	14	Provincial Government	1968	Storage	On Stream	Undeveloped
14	Athabasca - Pelican Rapids Hydro Site	Athabasca		20	79	17	4	55	53	112	38	TransAlta	1955	Storage	On Stream	Undeveloped
15	Athabasca Diversion	Athabasca		3	54	20	5	53	38	116	52	Provincial Government	1969	Diversion		Undeveloped
16	Belly River Reservoir	Oldman	Belly River	11	2	28	4	49	6	113	39	SMRID	2002	Storage	On Stream	Undeveloped
17	Black Eagle Project	Milk	Thelma Creek	25	6	3	4	49	30	110	17	Federal Government	1967	Storage	Off Stream	Undeveloped
18	Blackfoot Irrigation Development Site 2 Reservoir	Bow	West Arrowwood Creek	7	21	23	4	50	45	113	10	Federal Government	1987	Storage	Off Stream	Undeveloped
19	Bow - Cochrane Hydro Site	Bow		34	25	4	5	51	11	114	29	TransAlta	1953	Storage	On Stream	Undeveloped
20	Bow - Glenbow Hydro Site	Bow		28	25	3	5	51	10	114	22	TransAlta	1960	Storage	On Stream	Undeveloped
21	Bow - Lac des Arcs Hydro Site	Bow		23	24	9	5	51	4	115	9	TransAlta	1954	Storage	On Stream	Undeveloped
22	Bow - Radnor Hydro Site	Bow		15	26	5	5	51	13	114	37	TransAlta	1960	Storage	On Stream	Undeveloped
23	Bow - Russell Hydro Site	Bow		27	25	7	5	51	10	114	54	TransAlta	1960	Storage	On Stream	Undeveloped
24	Bow Office Study - Damsite 1	Bow		5	21	22	4	50	45	113	1	Federal Government	1957	Storage	On Stream	Undeveloped
25	Bow Office Study - Damsite 2	Bow		2	21	22	4	50	45	112	57	Federal Government	1957	Storage	On Stream	Undeveloped

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26	Bow Office Study - Damsite 3	Bow		5	21	19	4	50	45	112	36	Federal Government	1957	Storage	On Stream	Undeveloped
27	Bow River Barstow Site	Bow		18	22	23	4	50	50	113	10	Federal Government	1985	Storage	On Stream	Undeveloped
28	Bow to Oldman Diversion - Route 1 Callum Creek	Bow	Elbow	7	20	7	5	50	41	114	58	Federal Government	1970	Diversion		Undeveloped
29	Bow to Oldman Diversion - Route 2 Willow Creek	Bow	Elbow	7	20	7	5	50	41	114	58	Federal Government	1970	Diversion		Undeveloped
30	Bow to Oldman Diversion - Route 3 Mosquito Creek	Bow	Elbow	29	23	4	5	50	59	114	32	Federal Government	1970	Diversion		Undeveloped
31	Bow to Oldman Diversion - Route 4A Highwood Gravity	Bow	Highwood	29	20	28	4	50	43	113	51	Federal Government	1970	Diversion		Undeveloped
32	Bow to Oldman Diversion - Route 4B Highwood Pumped	Bow	Highwood	29	21	27	4	50	49	113	43	Federal Government	1970	Diversion		Undeveloped
33	Bow to Oldman Diversion - Route 5A Arrowwood Gravity	Bow		19	21	26	4	50	48	113	36	Federal Government	1970	Diversion		Undeveloped
34	Bow to Oldman Diversion - Route 5B Arrowwood Pumped	Bow		19	21	26	4	50	48	113	36	Federal Government	1970	Diversion		Undeveloped
35	Bow to Oldman Diversion - Route 6 Carseland-McGregor-Travers	Bow		28	14	21	4	50	12	112	49	Federal Government	1970	Diversion		Existing Expanded
36	Bow to Oldman Diversion - Route 7 Gleichen-McGregor-Travers	Bow		5	21	22	4	50	45	113	1	Federal Government	1970	Diversion		Existing Expanded
37	Bow to Oldman Diversion - Route 8 Bassano-McGregor-Travers	Bow		2	21	19	4	50	45	112	32	Federal Government	1970	Diversion		Existing Expanded
38	Brazeau - O'Chiese Damsite	North Sask	Brazeau	29	45	9	5	52	55	115	16	TransAlta	1965	Storage	On Stream	Undeveloped
39	Brazeau Forks Hydro Site	North Sask		11	46	9	5	52	57	115	12	TransAlta	1965	Storage	On Stream	Undeveloped
40	Bruce Lake Reservoir	Red Deer	Serviceberry Creek	25	25	26	4	51	10	113	30	WID	1984	Storage	Off Stream	Undeveloped
41	Cabin Lake & Dirty Lake(Blood Indian Project)	Red Deer	Blood & Indian Creeks	10	24	9	4	51	2	111	11	Federal Government	1956	Storage	On Stream	
42	Cameron Project	North Sask	Sounding Creek	24	30	8	4	51	35	111	0	Federal Government	1958	Storage	On Stream	Undeveloped
43	Carvel Dam-High Reservoir	North Sask		34	50	2	5	53	21	114	13	Provincial Government	1970	Storage	On Stream	Undeveloped
44	Carvel Dam-Low Damsite	North Sask		34	50	2	5	53	21	114	13	Provincial Government	1970	Storage	On Stream	Undeveloped
45	Carvel to Battle River(2000cfs Diversion)	North Sask		34	50	2	5	53	21	114	13	Provincial Government	1971	Diversion		Undeveloped
46	Carvel to Battle River(4000cfs Diversion)	North Sask		34	50	2	5	53	21	114	13	Provincial Government	1971	Diversion		Undeveloped
47	Carvel to Battle River(6000cfs Diversion)	North Sask		34	50	2	5	53	21	114	13	Provincial Government	1971	Diversion		Undeveloped
48	Castle River (Canyon Site)	Oldman	Castle River	24	6	2	5	49	29	114	9	Federal Government	1938	Storage	On Stream	Undeveloped
49	Chin Reservoir Expansion	South Sask		26	7	16	4	49	35	112	4	SMRID	2002	Storage	Off Stream	Existing Expanded
50	Chip Lake Diversion to Pembina River	Athabasca		33	53	9	5	53	37	115	16	Provincial Government	1970	Diversion		Undeveloped

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51	Clearwater Diversion to Horseguard	North Sask	Clearwater	23	37	6	5	52	12	114	45	Provincial Government	1968	Diversion		Undeveloped
52	Crowfoot Creek Dam	Bow	Crowfoot Creek	16	23	20	4	50	57	112	44	Provincial Government	1970	Storage	On Stream	Undeveloped
53	Crowfoot Creek Dam B	Bow	Crowfoot Creek	24	23	22	4	50	58	112	57	Federal Government	1995	Storage	On Stream	Undeveloped
54	Dalemead Diversion	Bow		20	21	26	4	50	48	113	34	Provincial Government	1971	Diversion		Undeveloped
55	Dalemead Reservoir (Intermediate)	Bow		20	21	26	4	50	48	113	34	Provincial Government	1977	Storage	On Stream	Undeveloped
56	Dalemead Reservoir (Low)	Bow		20	21	26	4	50	48	113	34	Provincial Government	1977	Storage	On Stream	Undeveloped
57	Dalemead Reservoir, Bow River Diversion	Bow		20	21	26	4	50	48	113	34	Provincial Government	1971	Storage	On Stream	Undeveloped
58	Deadhorse Coulee	Oldman	Little Bow	24	13	18	4	50	6	112	20	BRID	0	Storage	Off Stream	Undeveloped
59	Delacour Reservoir	Red Deer		18	25	27	4	51	8	113	46	WID	1982	Storage	Off Stream	Undeveloped
60	Drayton Damsite	North Sask		11	49	7	5	53	13	114	55	Provincial Government	1970	Storage	On Stream	Undeveloped
61	Dunvegan Dam	Peace/Slave	Peace	13	80	5	6	55	56	118	39	Provincial Government	1971	Diversion		Undeveloped
62	Dunvegan HydroElectric Project 1983	Peace/Slave		12	80	5	6	55	56	118	38	AB Power & TransAlta	1983	Storage	On Stream	Undeveloped
63	Dunvegan Hydroelectric Project 2000	Peace/Slave		7	80	4	6	55	55	118	38	Private	2000	Storage	On Stream	Undeveloped
64	Dunvegan to Lesser Slave Lake Diversion(10,000cfs)	Peace/Slave	Peace River	4	80	5	6	55	54	118	43	Provincial Government	1971	Diversion		Undeveloped
65	Dunvegan to Lesser Slave Lake Diversion(15,000cfs)	Peace/Slave	Peace River	4	80	5	6	55	54	118	43	Provincial Government	1971	Diversion		Undeveloped
66	Eagle Lake Pump Storage	Bow		30	23	24	4	50	59	113	21	WID	1985	Diversion		Existing Expanded
67	Eagle Lake Reservoir (Alternative #1)	Bow		21	23	24	4	50	58	113	18	Provincial Government	1970	Storage	Off Stream	Undeveloped
68	Eagle Lake Reservoir (Alternative #2)	Bow		21	23	24	4	50	58	113	18	Provincial Government	1970	Storage	Off Stream	Undeveloped
69	Eagle Lake Reservoir (Alternative #3)	Bow		21	23	24	4	50	58	113	18	Provincial Government	1970	Storage	Off Stream	Undeveloped
70	Eagle Pond	Bow		10	24	24	4	51	1	113	15	WID	1984	Storage	Off Stream	Undeveloped
71	East Chin Coulee	South Sask		26	7	16	4	49	35	112	4	SMRID	2002	Storage	Off Stream	Undeveloped
72	Eyremore Dam (High)	Bow		14	18	18	4	50	31	112	23	Provincial Government	1977	Storage	On Stream	Undeveloped
73	Eyremore Dam (Intermediate)	Bow		14	18	18	4	50	31	112	23	Provincial Government	1977	Storage	On Stream	Undeveloped
74	Eyremore Dam (Low)	Bow		14	18	18	4	50	31	112	23	Provincial Government	1977	Storage	On Stream	Undeveloped
75	Ferintosh Dam	North Sask	Meeting Creek(Battle River)	34	43	21	4	52	45	112	58	Provincial Government	1971	Diversion		Undeveloped

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76	Ford Damsite Elbow River Project	Bow	Elbow	24	21	7	5	50	48	114	51	Provincial Government	1969	Storage	On Stream	Undeveloped
77	Glenn Lakes Reservoir	Oldman		1	1	28	4	49	0	113	37	SMRID	2002	Storage		Undeveloped
78	Goodwin Dam(High Dam 5/10,000cfs diversion)	Peace/Slave	Smoky River	6	73	2	6	55	18	118	18	Provincial Government	1971	Diversion		Undeveloped
79	Goodwin Dam(Low Dam 10,000cfs Diversion)	Peace/Slave	Smoky River	6	73	2	6	55	18	118	18	Provincial Government	1971	Diversion		Undeveloped
80	Goodwin Dam(Low Dam 5000cfs diversion)	Peace/Slave	Smoky River	6	73	2	6	55	18	118	18	Provincial Government	1971	Diversion		Undeveloped
81	Goodwin Reservoir(High) to Lesser Slave Lake (10,000 cfs Gravity Diversion)	Peace/Slave	Smoky River	5	73	2	6	55	18	118	16	Provincial Government	1971	Diversion		Undeveloped
82	Goodwin Reservoir(High) to Lesser Slave Lake (5000cfs Gravity Diversion)	Peace/Slave	Smoky River	5	73	2	6	55	18	118	16	Provincial Government	1971	Diversion		Undeveloped
83	Goodwin Reservoir(Low) to Lesser Slave Lake(10,000cfs Pumped Diversion)	Peace/Slave	Smoky River	5	73	2	6	55	18	118	16	Provincial Government	1971	Diversion		Undeveloped
84	Goodwin Reservoir(Low) to Lesser Slave Lake(5000cfs Pumped Diversion)	Peace/Slave	Smoky River	5	73	2	6	55	18	118	16	Provincial Government	1971	Diversion		Undeveloped
85	Hairy Hill Dam	North Sask		12	57	14	4	53	54	111	57	Provincial Government	1970	Storage	On Stream	Undeveloped
86	Hammerhill Reservoir	Bow		1	23	23	4	50	56	113	5	WID	1996	Storage	Off Stream	Undeveloped
87	Hartell Coulee Reservoir	Red Deer	Serviceberry Creek	24	24	26	4	51	3	113	30	WID	1996	Storage	Off Stream	Undeveloped
88	Hornberger Lake	Red Deer		27	20	16	4	50	43	112	9	EID	0	Storage	Off Stream	Undeveloped
89	Horseguard Canal to Red Deer River	North Sask		29	38	5	5	52	18	114	41	Provincial Government	1969	Diversion		Undeveloped
90	Horseguard Dyke	Red Deer	Lasthill Ck & Medicine River	24	37	5	5	52	12	114	35	Provincial Government	1968	Storage	On Stream	Undeveloped
91	Horseguard North Dam	Red Deer	Lasthill Ck & Medicine River	34	38	5	5	52	19	114	38	Provincial Government	1968	Storage	On Stream	Undeveloped
92	Horseguard Reservoir Canal	North Sask	Stauffer Creek	11	37	5	5	52	10	114	37	Provincial Government	1969	Diversion		Undeveloped
93	Horseguard South Dam	Red Deer	Lasthill Ck & Medicine River	11	37	5	5	52	10	114	37	Provincial Government	1968	Storage	On Stream	Undeveloped
94	Irricana Recreation Reservoir	Red Deer	Crossfield Creek	20	27	26	4	51	19	113	38	Provincial Government	1974	Storage	On Stream	Undeveloped
95	Isle Lake Diversion to N Sask	North Sask		11	54	5	5	53	39	114	38	Provincial Government	1969	Diversion		Undeveloped
96	Jensen Reservoir Extension	Oldman	Pothole Creek	29	4	22	4	49	19	112	56	SMRID	2002	Storage	On Stream	Existing Expanded
97	Kakwa Site Diversion Dam-Smoky River	Peace/Slave	Smoky River	14	65	4	6	54	37	118	30	Provincial Government	1966	Diversion		Undeveloped
98	Kelsey Dam	North Sask	Battle River	32	43	18	4	52	45	112	35	Provincial Government	1971	Storage	On Stream	Undeveloped
99	Kelsey Reservoir to Red Deer River(2000cfs Diversion)	North Sask	Battle River	19	44	19	4	52	48	112	45	Provincial Government	1971	Diversion		Undeveloped
100	Kelsey Reservoir to Red Deer River(4000cfs Diversion)	North Sask	Battle River	19	44	19	4	52	48	112	45	Provincial Government	1971	Diversion		Undeveloped

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101	Kelsey Reservoir to Red Deer River(500cfs Diversion)	North Sask	Battle River	19	44	19	4	52	48	112	45	Provincial Government	1971	Diversion		Undeveloped
102	Kenex-Rocky Coulee Reservoir	Oldman		25	11	24	4	49	56	113	9	Provincial Government	1977	Storage	Off Stream	Undeveloped
103	Langdon Reservoir Expansion	Bow		25	22	27	4	50	54	113	37	WID	1994	Storage	Off Stream	Existing Expanded
104	Lee Creek - Site 5A	Oldman	Lee Creek	27	1	27	4	49	4	113	32	SMRID	2002	Storage	On Stream	Undeveloped
105	Lee Creek - Site 6	Oldman	Lee Creek	26	1	27	4	49	4	113	31	SMRID	2002	Storage	Off Stream	Undeveloped
106	Lee Creek Reservoir	Oldman	Lee Creek	26	2	26	4	49	9	113	23	Provincial Government	1971	Storage	On Stream	Undeveloped
107	Lee Creek -Site 3	Oldman	Lee Creek	30	2	25	4	49	9	113	20	SMRID	2002	Storage	On Stream	Undeveloped
108	Lesser Slave Lake-Storage/Conveyance(10,000cfs Diversion)	Athabasca	Lesser Slave River	7	73	5	5	55	18	114	46	Provincial Government	1971	Diversion		Undeveloped
109	Lesser Slave Lake-Storage/Conveyance(15,000cfs Diversion)	Athabasca	Lesser Slave River	7	73	5	5	55	18	114	46	Provincial Government	1971	Diversion		Undeveloped
110	Lesser Slave Lake-Storage/Conveyance(20,000cfs Diversion)	Athabasca	Lesser Slave River	7	73	5	5	55	18	114	46	Provincial Government	1971	Diversion		Undeveloped
111	Lesser Slave Lake-Storage/Conveyance(25,000cfs Diversion)	Athabasca	Lesser Slave River	7	73	5	5	55	18	114	46	Provincial Government	1971	Diversion		Undeveloped
112	Lesser Slave Lake-Storage/Conveyance(5000cfs Diversion)	Athabasca	Lesser Slave River	7	73	5	5	55	18	114	46	Provincial Government	1971	Diversion		Undeveloped
113	Little Beaver Lake & Cordwood Projects	Beaver	Amisk River	2	65	16	4	54	36	112	19	Ducks Unlimited	1990	Storage	On Stream	Existing Expanded
114	Little Bow River Project Dam and Reservoir	Oldman	Little Bow River	5	15	25	4	50	14	113	24	Provincial Government	1997	Storage	On Stream	
115	Little Bow Site 2	Oldman	Little Bow River	7	17	26	4	50	25	113	34	Provincial Government	1985	Storage	On Stream	Undeveloped
116	Little Bow Site 3	Oldman	Little Bow River	20	16	26	4	50	22	113	32	Provincial Government	1985	Storage	On Stream	Undeveloped
117	Little Bow Site 7A (50,000Ac Ft)	Oldman	Little Bow River	27	14	25	4	50	12	113	20	Provincial Government	1986	Storage	On Stream	Undeveloped
118	Little Bow Site 7A(70,000Ac Ft)	Oldman	Little Bow River	27	14	25	4	50	12	113	20	Provincial Government	1986	Storage	On Stream	Undeveloped
119	Little Bow Site 7B	Oldman	Little Bow River	31	14	25	4	50	13	113	24	Provincial Government	1985	Storage	On Stream	Undeveloped
120	Little Bow Site LB1	Oldman	Little Bow River	32	17	27	4	50	29	113	41	Provincial Government	1986	Storage	On Stream	Undeveloped
121	Little Fish Lake Regulation	Red Deer		4	28	16	4	51	20	112	20	Provincial Government	1987	Diversion		Existing Expanded
122	Lonely Valley Site	Milk	Lonely Valley Creek	27	2	20	4	49	9	112	36	Provincial Government	1978	Storage	On Stream	Undeveloped
123	Lumpy Butte Reservoir	Oldman	St. Mary River	10	3	24	4	49	12	113	9	SMRID	2002	Storage	Off Stream	Undeveloped
124	Magnolia Dam	North Sask	Isle Lk & Sturgeon River	13	53	7	5	53	35	114	54	Provincial Government	1970	Storage	On Stream	Undeveloped
125	Mary Lakes Reservoir	Oldman	St. Mary River	7	1	24	4	49	1	113	12	SMRID	2002	Storage	Off Stream	Undeveloped

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126	McLeod Reservoir Canal to Chip Lake	Athabasca		29	54	14	5	53	42	116	2	Provincial Government	1950	Diversion		Undeveloped
127	McLeod River Damsite	Athabasca	Mcleod River	33	57	13	5	53	58	115	53	Provincial Government	1967	Storage	On Stream	Undeveloped
128	McLeod Valley Dam	Athabasca	McLeod River	3	55	14	5	53	43	116	0	Provincial Government	1968	Diversion		Undeveloped
129	Meridian Dam	South Sask		13	22	1	4	50	52	110	1	Federal Government	1970	Storage	On Stream	Undeveloped
130	Meridian Dam (Scenario 2)	South Sask		13	22	1	4	50	52	110	1	Provincial Government	2002	Storage	On Stream	Undeveloped
131	Middle Coulee	Milk		33	4	19	4	49	20	112	30	SMRID	2002	Storage	Off Stream	Undeveloped
132	Milk River Forks Reservoir	Milk		27	2	18	4	49	9	112	20	Provincial Government	1986	Storage	On Stream	Undeveloped
133	Milk River Site 1	Milk		10	2	14	4	49	6	111	48	Provincial Government	1978	Storage	On Stream	Undeveloped
134	Mitchell Damsite	Bow	Elbow	4	22	6	5	50	50	114	47	Provincial Government	1969	Storage	On Stream	Undeveloped
135	Moose Portage Dam	Athabasca		17	72	25	4	55	14	113	49	Provincial Government	1971	Storage	On Stream	Undeveloped
136	Moose Portage Reservoir to North Sask. River (35,000cfs diversion)	Athabasca		25	68	2	5	54	55	114	10	Provincial Government	1971	Diversion		Undeveloped
137	Moose Portage Reservoir to North Sask. River (5000cfs diversion)	Athabasca		25	68	2	5	54	55	114	10	Provincial Government	1971	Diversion		Undeveloped
138	Moose Portage Reservoir to North Saskatchwan River(15,000 cfs diversion)	Athabasca		25	68	2	5	54	55	114	10	Provincial Government	1971	Diversion		Undeveloped
139	Mosquito Creek Site 3	Oldman	Mosquito Creek	2	17	28	4	50	24	113	45	Provincial Government	1985	Storage	On Stream	Undeveloped
140	Mosquito Creek Site MC4	Oldman	Mosquito Creek	36	16	29	4	50	23	113	52	Provincial Government	1985	Storage	On Stream	Undeveloped
141	Mud Lake	Oldman		24	9	27	4	49	45	113	32	Provincial Government	1977	Storage	Off Stream	Existing Expanded
142	North Milk Fork Site 1	Milk	North Milk	33	1	22	4	49	5	112	53	Provincial Government	1978	Storage	On Stream	Undeveloped
143	North Milk Fork Site 2	Milk	North Milk	22	2	20	4	49	8	112	36	Provincial Government	1980	Storage	On Stream	Undeveloped
144	North Milk Fork Site 3	Milk	North Milk	20	2	20	4	49	8	112	39	Provincial Government	1978	Storage	On Stream	Undeveloped
145	Oldman River Gap Damsite	Oldman		32	10	3	5	49	52	114	23	Provincial Government	1966	Storage	On Stream	Undeveloped
146	Oldman River Site 1-1A	Oldman		18	8	21	4	49	39	112	50	Provincial Government	1975	Storage	On Stream	Undeveloped
147	Oldman River Site 1-2A	Oldman		20	10	24	4	49	50	113	13	Provincial Government	1975	Storage	On Stream	Undeveloped
148	Oldman River Site 1-3A	Oldman		35	7	28	4	49	36	113	42	Provincial Government	1975	Storage	On Stream	Undeveloped
149	Oldman River Site 1-4	Oldman		21	8	1	5	49	40	114	5	Provincial Government	1975	Storage	On Stream	Undeveloped
150	Oldman River Site 2-1A	Oldman	St. Mary River	12	7	22	4	49	33	112	52	Provincial Government	1975	Storage	On Stream	Undeveloped

Summary of Inventoried Projects

Map Ref #	Project Name	River Basin	Tributary Name	Sec	Twp	Rge	Mdn	Lat (Deg)	Lat (Min)	Long (Deg)	Long (Min)	Client/Owner	Study Year	Project Type	Storage Type	Status
151	Oldman River Site 3-1	Oldman	Belly River	18	9	23	4	49	44	113	6	Provincial Government	1975	Storage	On Stream	Undeveloped
152	Oldman River Site 5-1A	Oldman	Castle River	27	6	1	5	49	30	114	3	Provincial Government	1975	Storage	On Stream	Undeveloped
153	Parkland Reservoir	Oldman	Little Bow River	5	15	25	4	50	14	113	24	Provincial Government	1971	Storage	On Stream	Undeveloped
154	Peanut Lake	Bow		31	22	24	4	50	54	113	18	WID	1985	Storage	Off Stream	Undeveloped
155	Pembina Diversion to N Sask via Mishow Creek	Athabasca	Mishow Creek	6	52	7	5	53	28	115	1	Provincial Government	1968	Diversion		Undeveloped
156	Pembina Flood Control Project (Site #4)	Athabasca	Pembina River	17	53	7	5	53	35	115	0	Provincial Government	1965	Storage	On Stream	Undeveloped
157	Pembina Reservoir Diversion	Athabasca		26	52	7	5	53	31	114	55	Provincial Government	1969	Diversion		Undeveloped
158	Pembina River Dam	Athabasca	Pembina River	17	53	7	5	53	35	115	0	Provincial Government	1969	Diversion		Undeveloped
159	Rapid Narrows Damsite	South Sask		12	17	4	4	50	25	110	26	Provincial Government	1969	Storage	On Stream	Undeveloped
160	Raven Dam	Red Deer		22	35	3	5	52	1	114	21	Provincial Government	1968	Diversion		Undeveloped
161	Raven Reservoir to Torrington Reservoir(2000cfs Diversion)	Red Deer	Red Deer River	15	35	3	5	52	0	114	21	Provincial Government	1970	Diversion		Undeveloped
162	Raven Reservoir to Torrington Reservoir(4000cfs Diversion)	Red Deer	Red Deer River	15	35	3	5	52	0	114	21	Provincial Government	1970	Diversion		Undeveloped
163	Red Deer - Crowfoot Pumped Diversion	Red Deer		8	27	17	4	51	17	112	22	Provincial Government	1970	Diversion		Undeveloped
164	Ribstone Project	North Sask	Ribstone Creek		38	8	4	52	16	111	5	Federal Government	1940	Storage	On Stream	Undeveloped
165	Rocky Mountain House Canal	North Sask	Lasthill Creek	20	40	7	5	52	28	114	59	Provincial Government	1969	Diversion		Undeveloped
166	Rocky Mountain House Dam Site E	North Sask		17	39	7	5	52	21	114	59	Provincial Government	1968	Diversion		Undeveloped
167	Rocky Mountain House Site A	North Sask		17	40	7	5	52	26	114	59	Provincial Government	1968	Diversion		Undeveloped
168	Rocky Rapids Reservoir	North Sask		33	47	7	5	53	6	114	58	Provincial Government	1970	Storage	On Stream	Undeveloped
169	Rolph Creek Reservoir	Oldman	Rolph Creek	29	2	23	4	49	9	113	3	SMRID	2002	Storage	On Stream	Undeveloped
170	Sand River Dam - Site B	Beaver	Sand River	21	66	8	4	54	44	111	9	Provincial Government	1984	Storage	On Stream	Undeveloped
171	Sand River Dam - Sites C & D	Beaver	Sand River	21	63	8	4	54	28	111	9	Provincial Government	1984	Storage	On Stream	Undeveloped
172	Saunders Dam	North Sask	Blackmud Creek	7	50	24	4	53	18	113	30	Provincial Government	1971	Diversion		Undeveloped
173	SAWSP (Special Areas) - Lehman Reservoir Alt. B	North Sask	Sounding Creek	20	34	12	4	51	56	111	40	Municipal Government	2004	Diversion		Undeveloped
174	SAWSP (Special Areas) - Lehman Reservoir Upgrade	North Sask	Sounding Creek	30	34	12	4	51	57	111	42	Municipal Government	2004	Diversion		Existing Expanded
175	SAWSP (Special Areas) - Oyen Tributary Reservoir	North Sask	Sounding Creek	7	30	4	4	51	33	110	33	Municipal Government	2004	Diversion		Undeveloped

Summary of Inventoried Projects

Map Ref #	Project Name	River Basin	Tributary Name	Sec	Twp	Rge	Mdn	Lat (Deg)	Lat (Min)	Long (Deg)	Long (Min)	Client/Owner	Study Year	Project Type	Storage Type	Status
176	SAWSP (Special Areas) - Storch Reservoir	Red Deer	Berry Creek	2	34	13	4	51	53	111	44	Municipal Government	2004	Diversion		Existing Expanded
177	Shanks Lake Reservoir Project	Milk	Shanks Creek	35	1	21	4	49	5	112	43	Federal Government	1940	Storage	On Stream	Existing Expanded
178	Shepard Hydro Site	Bow		7	23	28	4	50	57	113	54	TransAlta	1955	Diversion		Existing Expanded
179	Slave River Hydro - Alt. 4 Site	Peace/Slave		34	126	11	4	59	59	111	49	Provincial Government	1982	Storage	On Stream	Undeveloped
180	Slave River Hydro - Mountain Rapids Site	Peace/Slave		25	126	11	4	59	59	111	46	Provincial Government	1982	Storage	On Stream	Undeveloped
181	Smoky River - 19th Baseline Hydro Site	Peace/Slave	Smoky	32	72	2	6	55	17	118	16	Canadian Utilities Ltd	1964	Storage	On Stream	Undeveloped
182	Smoky River - Meander Hydro Site	Peace/Slave	Smoky	20	72	2	6	55	15	118	16	Private	1980	Storage	On Stream	Undeveloped
183	Smoky River Hydro - 18th Baseline Site	Peace/Slave	Smoky	4	69	4	6	54	57	118	33	?	1960	Storage	On Stream	Undeveloped
184	Smoky River Hydro - Cutbank Site	Peace/Slave	Smoky	22	66	4	6	54	44	118	31	?	1960	Storage	On Stream	Undeveloped
185	Smoky River Hydro - Kakwa Site	Peace/Slave	Smoky	14	65	4	6	54	38	118	29	?	1960	Storage	On Stream	Undeveloped
186	Smoky River Hydro - Peace River Site	Peace/Slave	Smoky	28	82	22	5	56	8	117	22	?	1960	Storage	On Stream	Undeveloped
187	Smoky River Hydro - Wapiti Site	Peace/Slave	Smoky	17	71	2	6	55	9	118	16	?	1960	Storage	On Stream	Undeveloped
188	Smoky River Hydro - Watino Site	Peace/Slave	Smoky	11	77	24	5	55	39	117	37	?	1960	Storage	On Stream	Undeveloped
189	Smoky River Hydro - West Watino Site	Peace/Slave	Smoky	1	76	26	5	55	33	117	54	?	1960	Storage	On Stream	Undeveloped
190	Sounding Creek - North Dam	North Sask	Sounding Creek	22	30	5	4	51	35	110	38	Provincial Government	1958	Storage	On Stream	Undeveloped
191	Sounding Creek - South Dam	North Sask	Sounding Creek	9	30	4	4	51	33	110	31	Provincial Government	1958	Storage	On Stream	Undeveloped
192	South Milk Fork Site 1	Milk		31	1	18	4	49	5	112	24	Provincial Government	1978	Storage	On Stream	Undeveloped
193	South Milk Fork Site 2	Milk		17	2	18	4	49	7	112	23	Provincial Government	1978	Storage	On Stream	Undeveloped
194	Special Areas Water Supply-Canal & On-line Storage Alt #2a	Red Deer		12	38	28	4	52	15	113	53	Provincial Government	2000	Diversion		Undeveloped
195	Special Areas Water Supply-Canal & On-line Storage Alt #2b	Red Deer		12	38	28	4	52	15	113	53	Provincial Government	1992	Diversion		Undeveloped
196	Special Areas Water Supply-Canal & On-line Storage Alt #3	Red Deer		12	38	28	4	52	15	113	53	Provincial Government	1992	Diversion		Undeveloped
197	Special Areas Water Supply-Canal & On-line Storage Alt. #1	Red Deer		12	38	28	4	52	15	113	53	Provincial Government	1992	Diversion		Undeveloped
198	Special Areas Water Supply-Pumphouse & Pipeline	Red Deer		10	38	22	4	52	15	113	4	Provincial Government	2000	Diversion		Undeveloped
199	Spray Reservoir Expansion	Bow	Spray	29	23	10	5	50	59	115	22	TransAlta	1959	Storage	On Stream	Existing Expanded
200	St. Mary - Kimball Reservoir	Oldman	St. Mary River	22	1	25	4	49	3	113	16	SMRID	2002	Storage	On Stream	Undeveloped

Summary of Inventoried Projects

Map Ref #	Project Name	River Basin	Tributary Name	Sec	Twp	Rge	Mdn	Lat (Deg)	Lat (Min)	Long (Deg)	Long (Min)	Client/Owner	Study Year	Project Type	Storage Type	Status
201	St. Mary Border Reservoir	Oldman	St. Mary River	3	1	25	4	49	0	113	16	SMRID	2002	Storage	On Stream	Undeveloped
202	Steinbach Reservoir	Bow		36	19	18	4	50	39	112	22	EID	1987	Storage	Off Stream	Undeveloped
203	Stimson Creek Dam Site	Bow	Stimson Creek/Highwood	29	16	2	5	50	23	114	15	Provincial Government	2001	Storage	On Stream	Undeveloped
204	Sutherland Dam	Red Deer	Berry Creek	32	22	12	4	50	55	111	30	Federal Government	1999	Storage	On Stream	Existing Expanded
205	Taylorville Reservoir	Oldman	Willow (Rolph) Creek	24	1	24	4	49	3	113	5	SMRID	2002	Storage	On Stream	Undeveloped
206	Tomahawk Reservoir	North Sask		15	50	6	5	53	19	114	48	Provincial Government	1970	Storage	On Stream	Undeveloped
207	Tongue Creek Site	Bow	Tongue Creek/Highwood	19	19	29	4	50	37	114	0	Provincial Government	2001	Storage	On Stream	Undeveloped
208	Torrington Dam	Red Deer		10	33	28	4	51	49	113	54	Provincial Government	1968	Diversion		Undeveloped
209	Torrington Reservoir to Bow River Diversion(2000cfs Diversion)	Red Deer		10	33	28	4	51	49	113	54	Provincial Government	1968	Diversion		Undeveloped
210	Torrington Reservoir to Bow River Diversion(4000cfs Diversion)	Red Deer		10	33	28	4	51	49	113	54	Provincial Government	1968	Diversion		Undeveloped
211	Travers Reservoir Outlet Lowering - Concept 1	Oldman	Little Bow	32	14	21	4	50	13	112	50	Provincial Government	2005	Storage	On Stream	Existing Expanded
212	Travers Reservoir Outlet Lowering - Concept 2	Oldman	Little Bow	32	14	21	4	50	13	112	50	Provincial Government	2005	Storage	On Stream	Existing Expanded
213	Upper Red Deer - Logan Site	Red Deer		10	31	9	5	51	38	115	12	Provincial Government	1976	Storage	On Stream	Undeveloped
214	Upper Red Deer - Site 11	Red Deer		11	31	8	5	51	38	115	2	Provincial Government	1976	Storage	On Stream	Undeveloped
215	Upper Red Deer -Site 12	Red Deer		8	31	8	5	51	38	115	6	Provincial Government	1976	Storage	On Stream	Undeveloped
216	Upper Red Deer -Site 13	Red Deer		18	31	9	5	51	39	115	16	Provincial Government	1976	Storage	On Stream	Undeveloped
217	Upper Red Deer -Site 14	Red Deer		18	31	10	5	51	39	115	25	Provincial Government	1976	Storage	On Stream	Undeveloped
218	Upper Red Deer -Site 18	Red Deer		33	33	6	5	51	52	114	48	Provincial Government	1976	Storage	On Stream	Undeveloped
219	Upper Red Deer -Site 19	Red Deer		25	30	9	5	51	36	115	8	Provincial Government	1976	Storage	On Stream	Undeveloped
220	Upper Red Deer -Site 20	Red Deer		35	30	11	5	51	37	115	27	Provincial Government	1976	Storage	On Stream	Undeveloped
221	Upper Red Deer -Site 8	Red Deer		5	32	6	5	51	43	114	49	Provincial Government	1976	Storage	On Stream	Undeveloped
222	Upper Red Deer -Site 9	Red Deer		25	31	7	5	51	41	114	52	Provincial Government	1976	Storage	On Stream	Undeveloped
223	Upper Red Deer -Williams Creek	Red Deer		29	31	7	5	51	41	114	58	Provincial Government	1976	Storage	On Stream	Undeveloped
224	Vermilion Diversion Prop. A (10,000cfs)	North Sask		35	56	15	4	53	53	112	7	Provincial Government	1968	Diversion		Undeveloped
225	Vermilion Diversion Prop. A (5000cfs)	North Sask		35	56	15	4	53	53	112	7	Provincial Government	1968	Diversion		Undeveloped

Summary of Inventoried Projects

Map Ref #	Project Name	River Basin	Tributary Name	Sec	Twp	Rge	Mdn	Lat (Deg)	Lat (Min)	Long (Deg)	Long (Min)	Client/Owner	Study Year	Project Type	Storage Type	Status
226	Vermilion Diversion Prop. B (10,000cfs)	North Sask		35	56	15	4	53	53	112	7	Provincial Government	1968	Diversion		Undeveloped
227	Vermilion Diversion Prop. B (5000cfs)	North Sask		35	56	15	4	53	53	112	7	Provincial Government	1968	Diversion		Undeveloped
228	West Arrowwood Site 1	Bow	West Arrowwood Creek	18	21	23	4	50	47	113	12	Provincial Government	0	Storage	On Stream	Undeveloped
229	West Arrowwood Site 2	Bow	West Arrowwood Creek	17	21	23	4	50	46	113	10	Provincial Government	0	Storage	On Stream	Undeveloped
230	West Raymond Reservoir	Milk		25	5	21	4	49	25	112	43	SMRID	2002	Storage	Off Stream	Undeveloped
231	Wildhorse Dam	Milk	Sage Creek	23	2	3	4	49	8	110	18	Federal Government	1935	Storage	On Stream	
232	Willow Creek - Site 1	Oldman	Willow Creek	12	13	28	4	50	4	113	42	Provincial Government	1986	Storage	On Stream	Undeveloped
233	Willow Creek - Site 3	Oldman	Willow Creek	2	14	30	4	50	8	113	59	Provincial Government	1986	Storage	On Stream	Undeveloped
234	Willow Creek - Site 4 (Below Chain Lakes)	Oldman	Willow Creek	15	14	1	5	50	10	114	4	Provincial Government	1984	Storage	On Stream	Undeveloped
235	Willow Creek - Site 5 (South Willow Creek)	Oldman	South Willow Creek	5	14	1	5	50	8	114	6	Provincial Government	1984	Storage	On Stream	Undeveloped
236	Willow Creek - Site 6 (Trout Creek)	Oldman	Trout Creek	34	11	28	4	49	57	113	45	Provincial Government	1984	Storage	On Stream	Undeveloped
237	Women's (Squaw) Coulee Project	Bow	Women's Coulee/Highwood	28	18	29	4	50	33	113	56	Provincial Government	2001	Storage	Off Stream	Undeveloped
238	Women's (Squaw) Coulee Site SC2	Bow	Women's (Squaw) Coulee	26	17	29	4	50	28	113	53	Provincial Government	1985	Storage	On Stream	Undeveloped

DIGITAL MAPPING – SUPPLEMENTAL INFORMATION

The following is a list of the significant river basin mapping information available in layers in the *AutoCAD* drawing files. Some of this information was not printed on the hard copy maps due to clarity. The *AutoCAD* files are included on the enclosed disk.

i) Cities

ii) Towns

iii) Villages

iv) Major Rivers

v) Streams

vi) Lakes

vii) River Basins

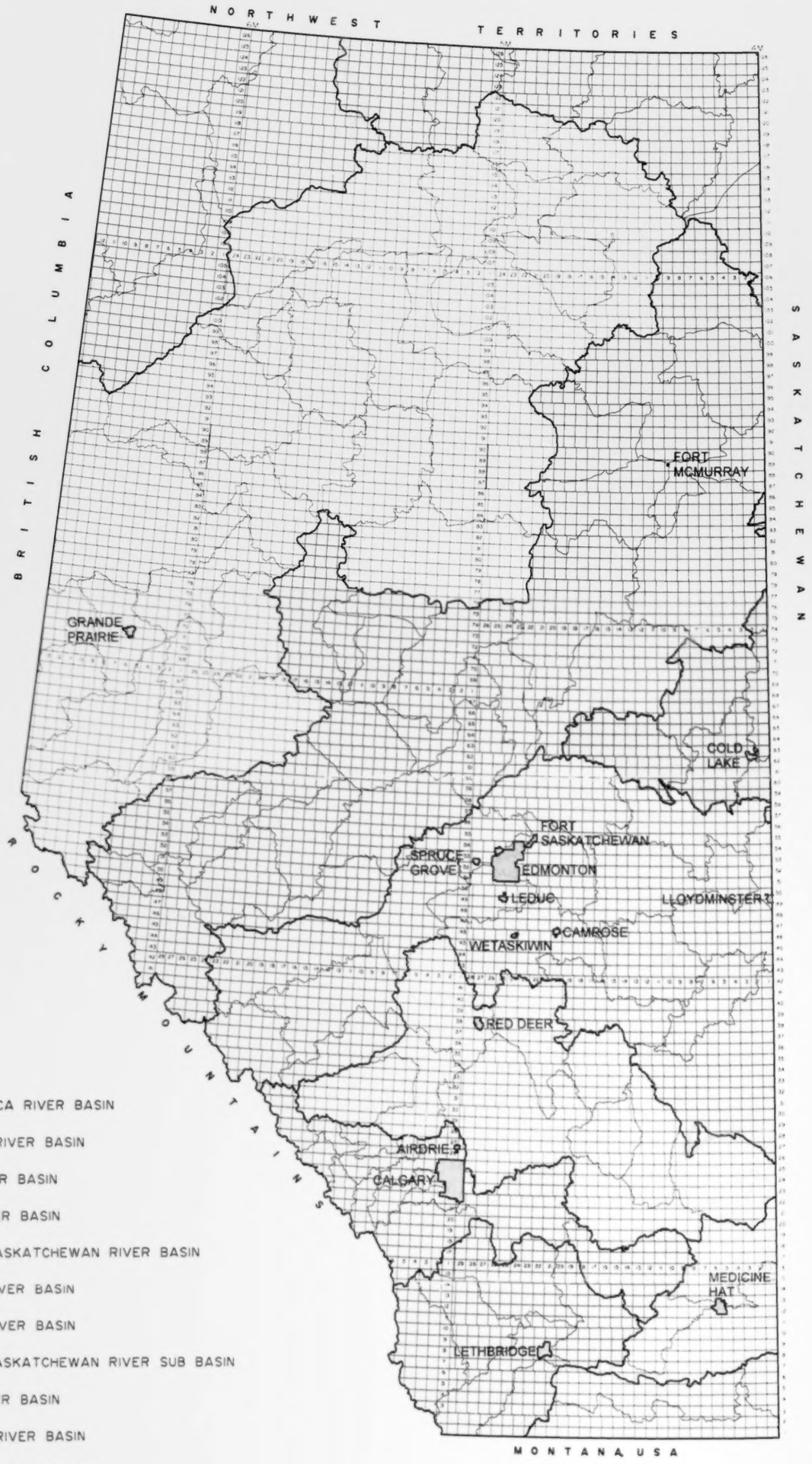
viii) Sub Basins

ix) Township Grid

x) Provincial Electoral Boundaries 2004

xi) Potential Storage / Diversion Sites

xii) Existing Storage / Diversion Sites



- ATHABASCA RIVER BASIN
- BEAVER RIVER BASIN
- HAY RIVER BASIN
- MILK RIVER BASIN
- NORTH SASKATCHEWAN RIVER BASIN
- PEACE RIVER BASIN
- SLAVE RIVER BASIN
- SOUTH SASKATCHEWAN RIVER SUB BASIN
- BOW RIVER BASIN
- OLDMAN RIVER BASIN
- RED DEER RIVER BASIN

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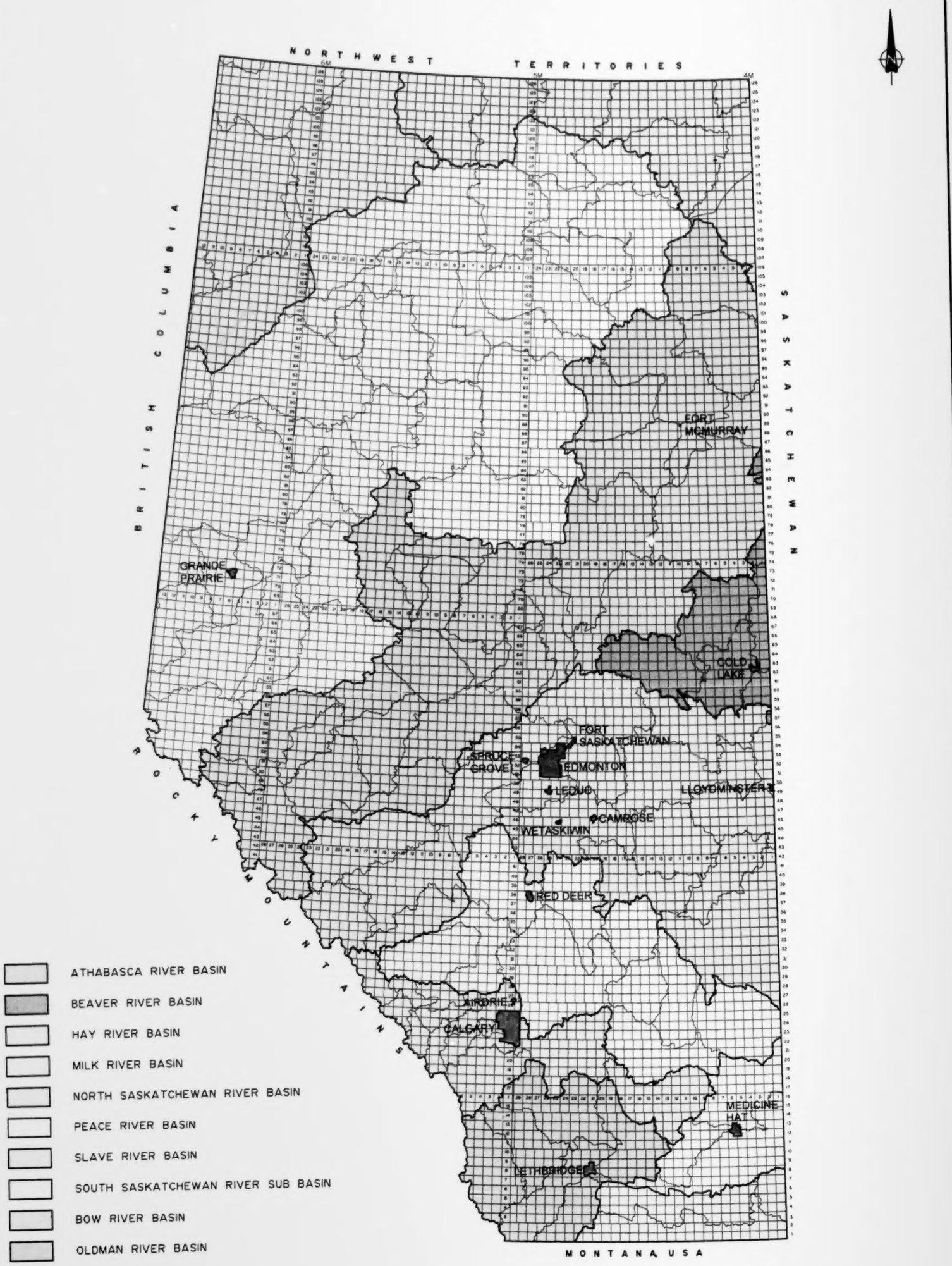
PROVINCIAL INVENTORY OF POTENTIAL WATER STORAGE SITES AND DIVERSION SCENARIOS RIVER BASINS

SCALE: 1:4 000 000	DATE: SEPTEMBER 2005	JOB: 2120-042-00	FIGURE: C1



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PROVINCIAL INVENTORY OF POTENTIAL WATER STORAGE SITES AND DIVERSION SCENARIOS
RIVER BASINS

SCALE: 1:4 000 000	DATE: SEPTEMBER 2005	JOB: 2120-042-00	FIGURE: C1

HAY RIVER BASIN

- ● POTENTIAL WATER STORAGE / DIVERSION SITES
- ▲ EXISTING WATER STORAGE / DIVERSION SITES

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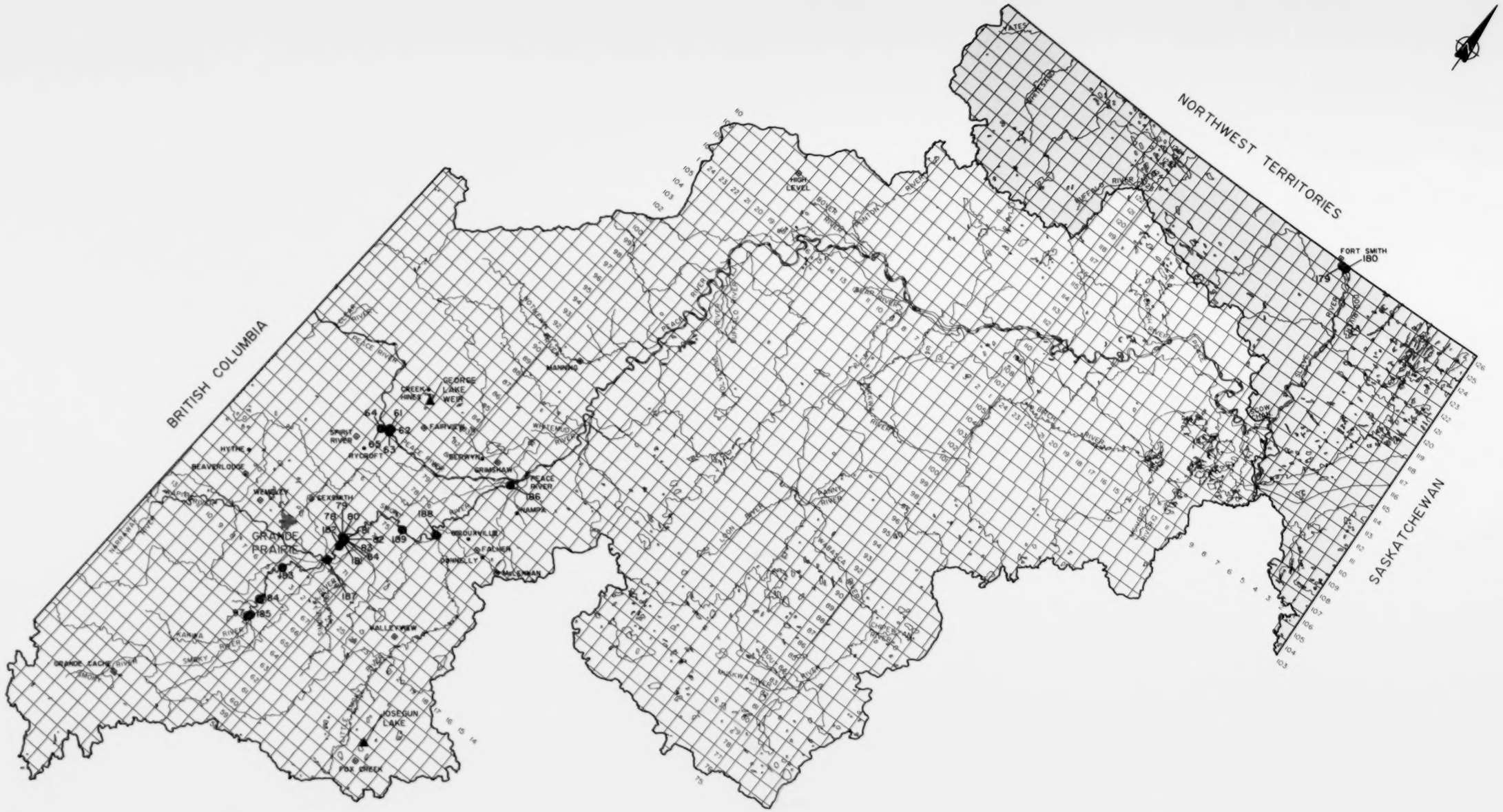
HAY RIVER BASIN

SCALE: 1:1 250 000	DATE: SEPTEMBER 2005	JOB: 2120-042-00	FIGURE: C2



PEACE RIVER AND SLAVE RIVER BASINS

- ● POTENTIAL WATER STORAGE / DIVERSION SITES
- ▲ EXISTING WATER STORAGE / DIVERSION SITES
- PEACE RIVER BASIN
- SLAVE RIVER BASIN

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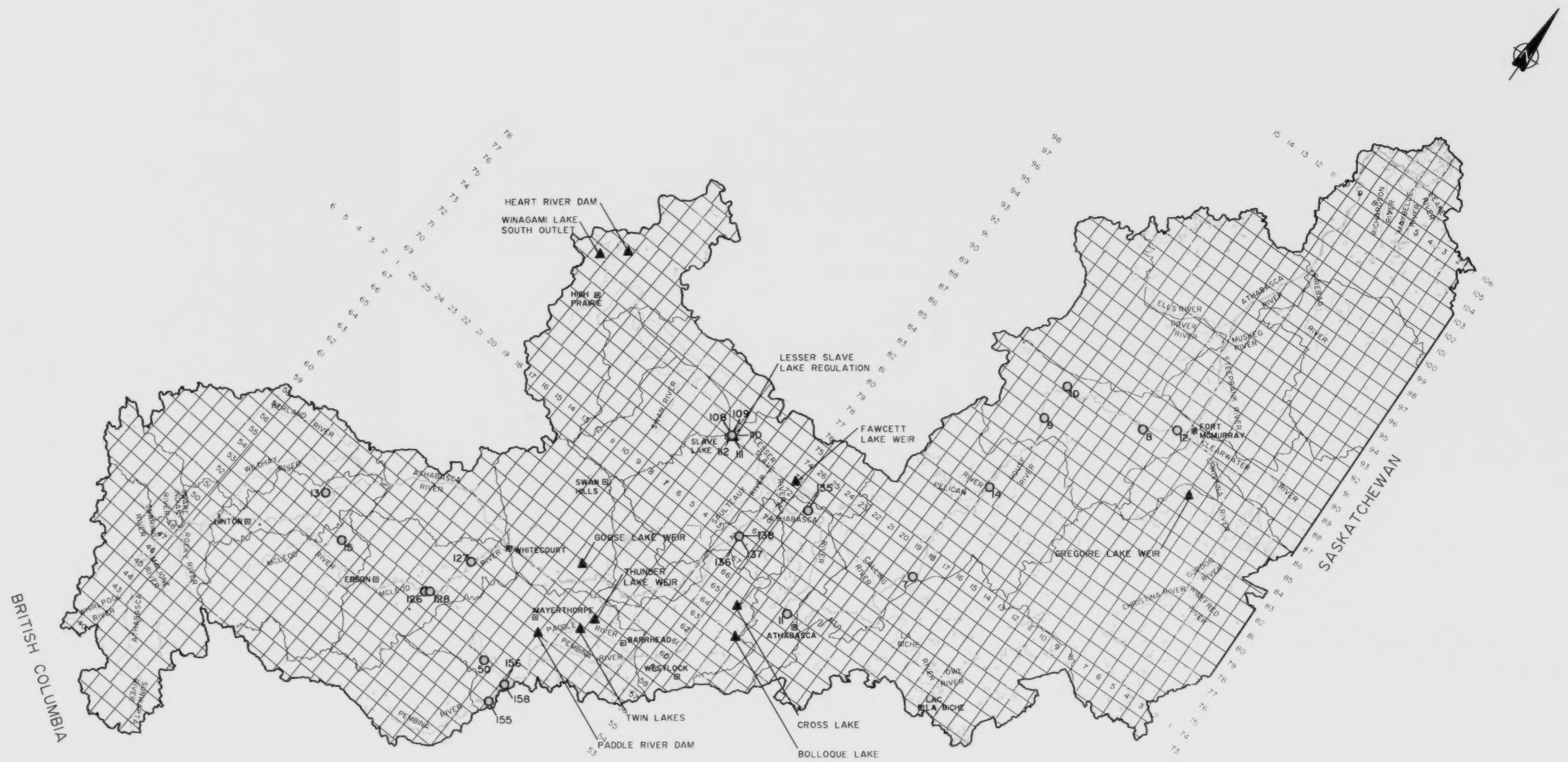
PROVINCIAL INVENTORY OF POTENTIAL WATER STORAGE SITES AND DIVERSION SCENARIOS
PEACE RIVER AND SLAVE RIVER BASINS

SCALE: 1:2 500 000	DATE: SEPTEMBER 2005	JOB: 2120-042-00	FIGURE: C3



ATHABASCA RIVER BASIN

- O POTENTIAL WATER STORAGE / DIVERSION SITES
- ▲ EXISTING WATER STORAGE / DIVERSION SITES

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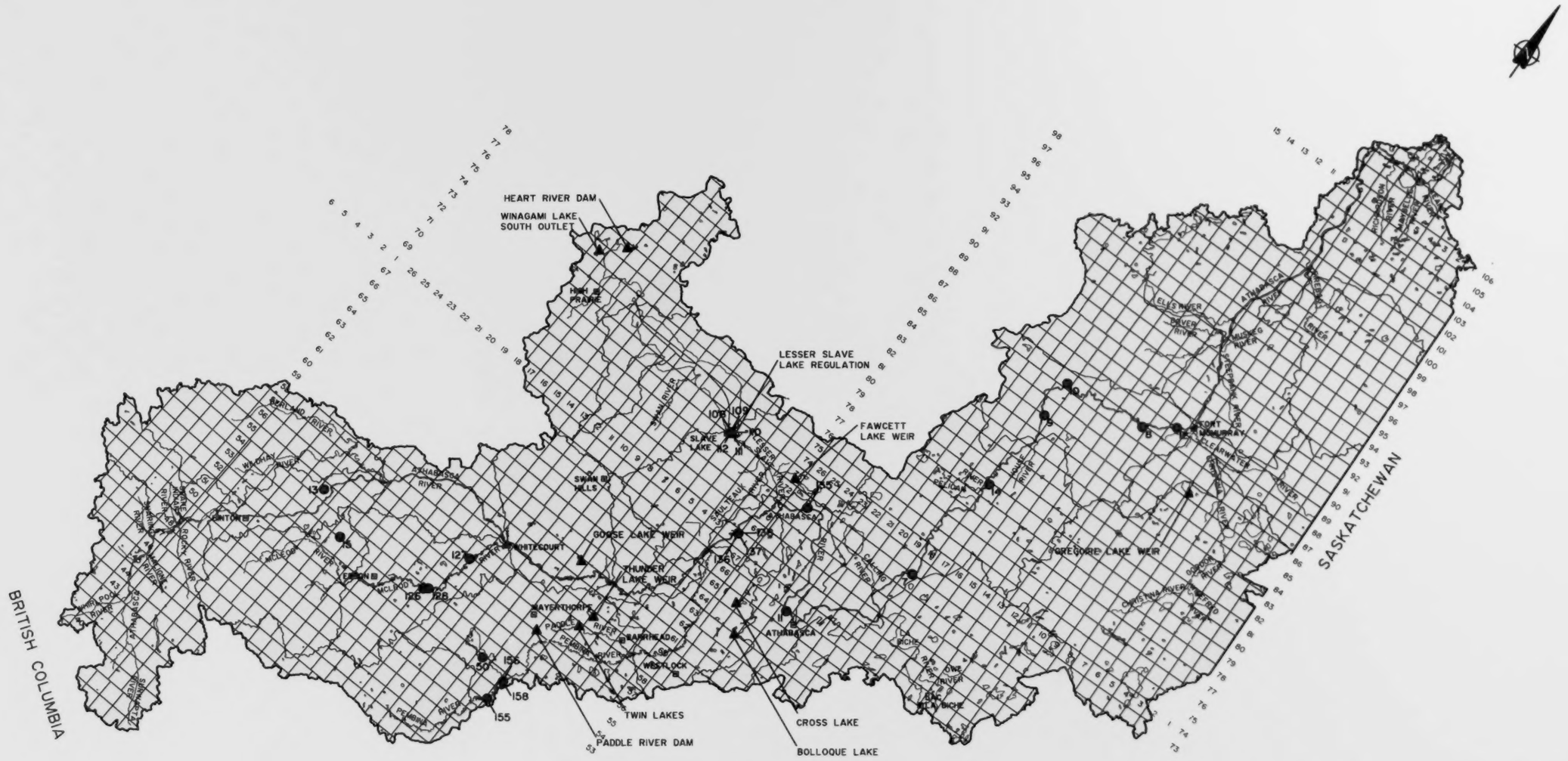
PROVINCIAL INVENTORY OF POTENTIAL WATER STORAGE SITES AND DIVERSION SCENARIOS
ATHABASCA RIVER BASIN

SCALE: 1:2 500 000	DATE: SEPTEMBER 2005	JOB: 2120-042-00	FIGURE: C4



ATHABASCA RIVER BASIN

- ● POTENTIAL WATER STORAGE / DIVERSION SITES
- ▲ EXISTING WATER STORAGE / DIVERSION SITES

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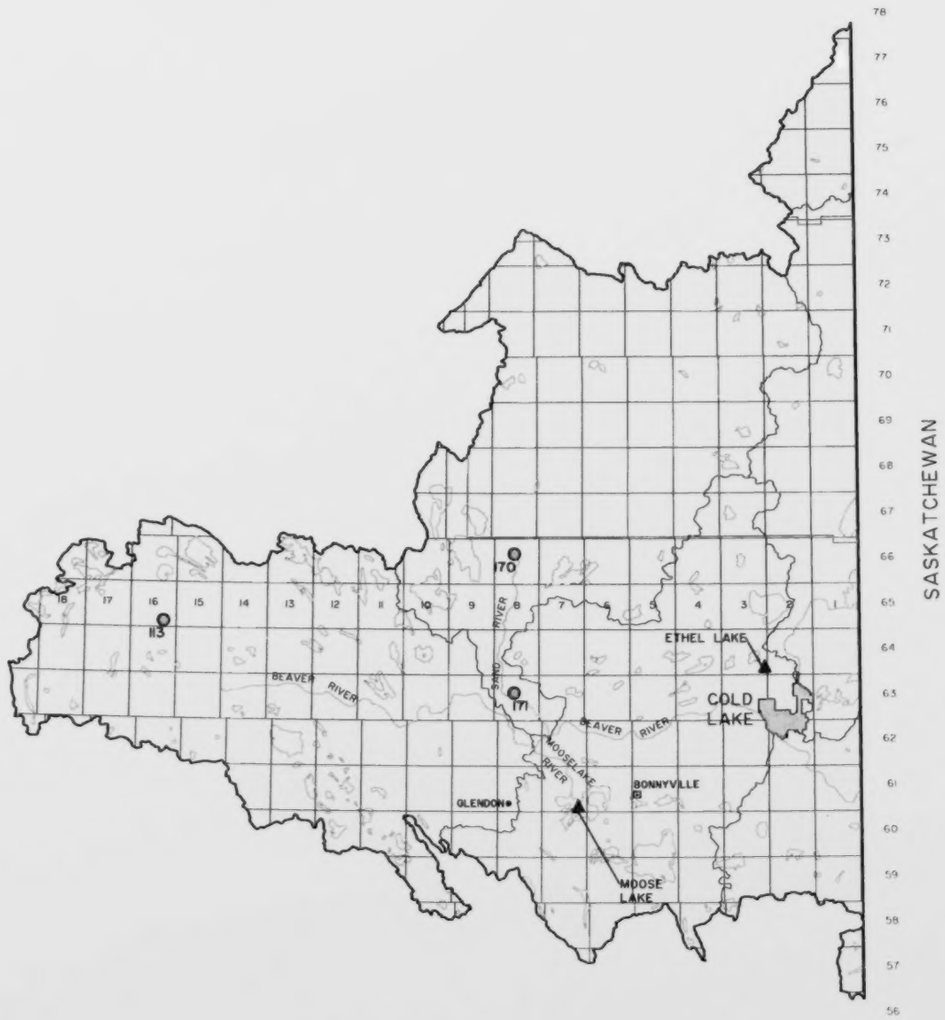
PROVINCIAL INVENTORY OF POTENTIAL WATER STORAGE SITES AND DIVERSION SCENARIOS
ATHABASCA RIVER BASIN

SCALE: 1:2 500 000	DATE: SEPTEMBER 2005	JOB: 2120-042-00	FIGURE: C4



BEAVER RIVER BASIN

- ⊙ POTENTIAL WATER STORAGE / DIVERSION SITES
- ▲ EXISTING WATER STORAGE / DIVERSION SITES

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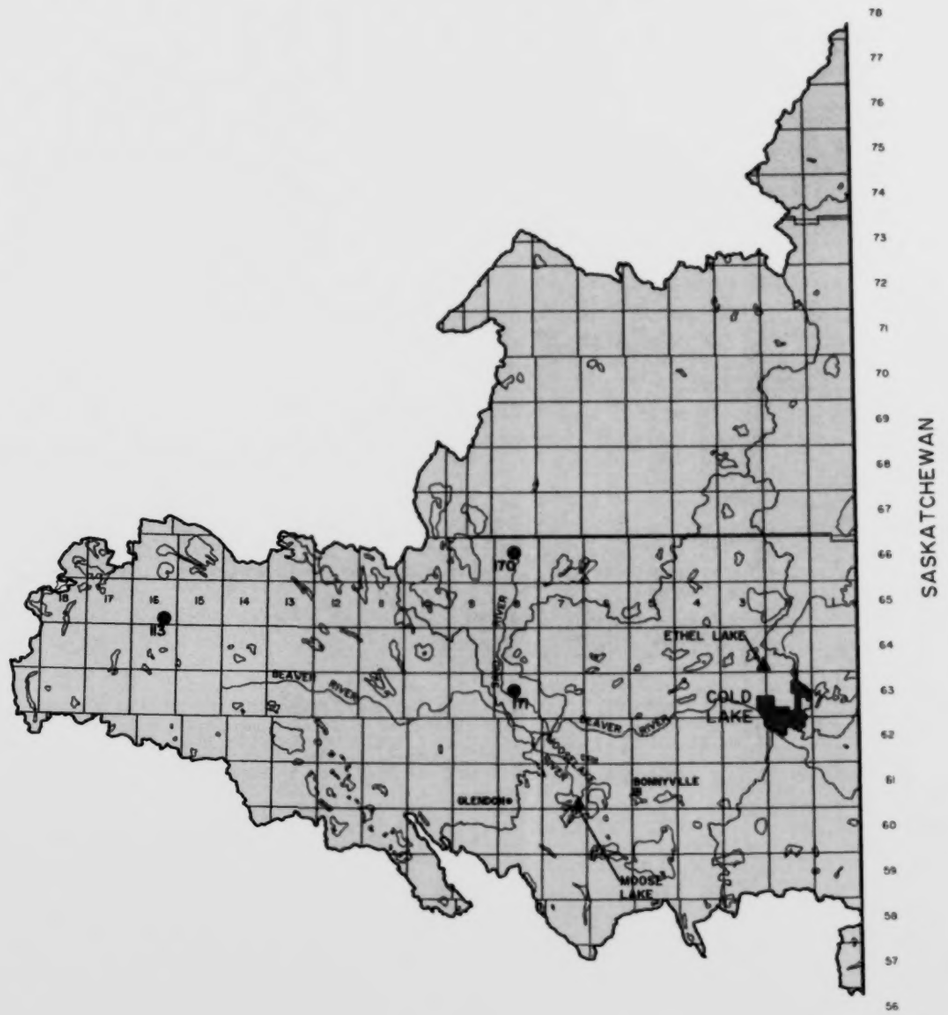
PROVINCIAL INVENTORY OF POTENTIAL WATER STORAGE SITES AND DIVERSION SCENARIOS
BEAVER RIVER BASIN

SCALE: 1:1 250 000	DATE: SEPTEMBER 2005	JOB: 2120-042-00	FIGURE: C5



BEAVER RIVER BASIN

- ● POTENTIAL WATER STORAGE / DIVERSION SITES
- ▲ EXISTING WATER STORAGE / DIVERSION SITES

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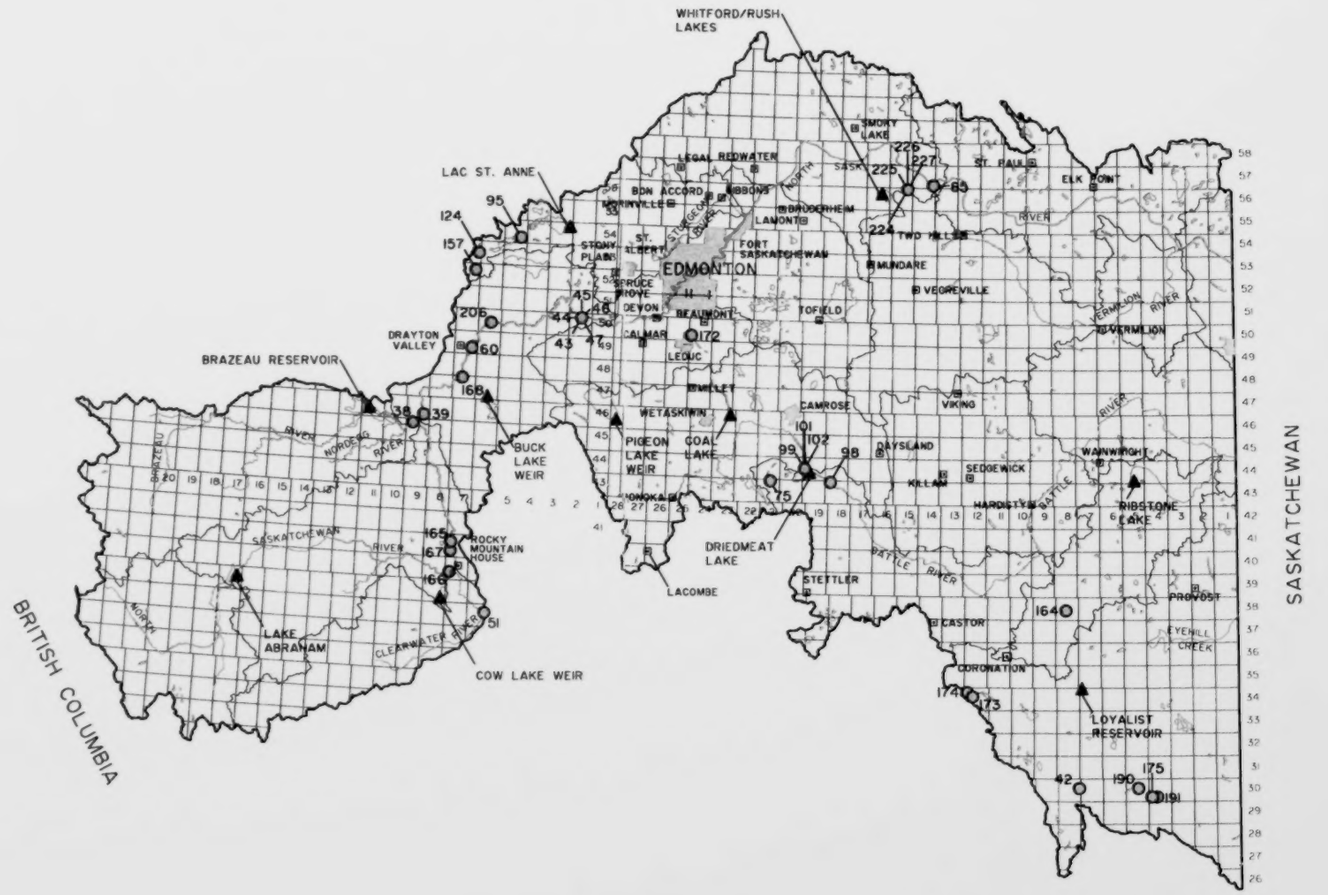
PROVINCIAL INVENTORY OF POTENTIAL WATER STORAGE SITES AND DIVERSION SCENARIOS
BEAVER RIVER BASIN

SCALE: 1:1 250 000	DATE: SEPTEMBER 2005	JOB: 2120-042-00	FIGURE: C5



NORTH SASKATCHEWAN RIVER BASIN

- ○ POTENTIAL WATER STORAGE / DIVERSION SITES
- ▲ EXISTING WATER STORAGE / DIVERSION SITES

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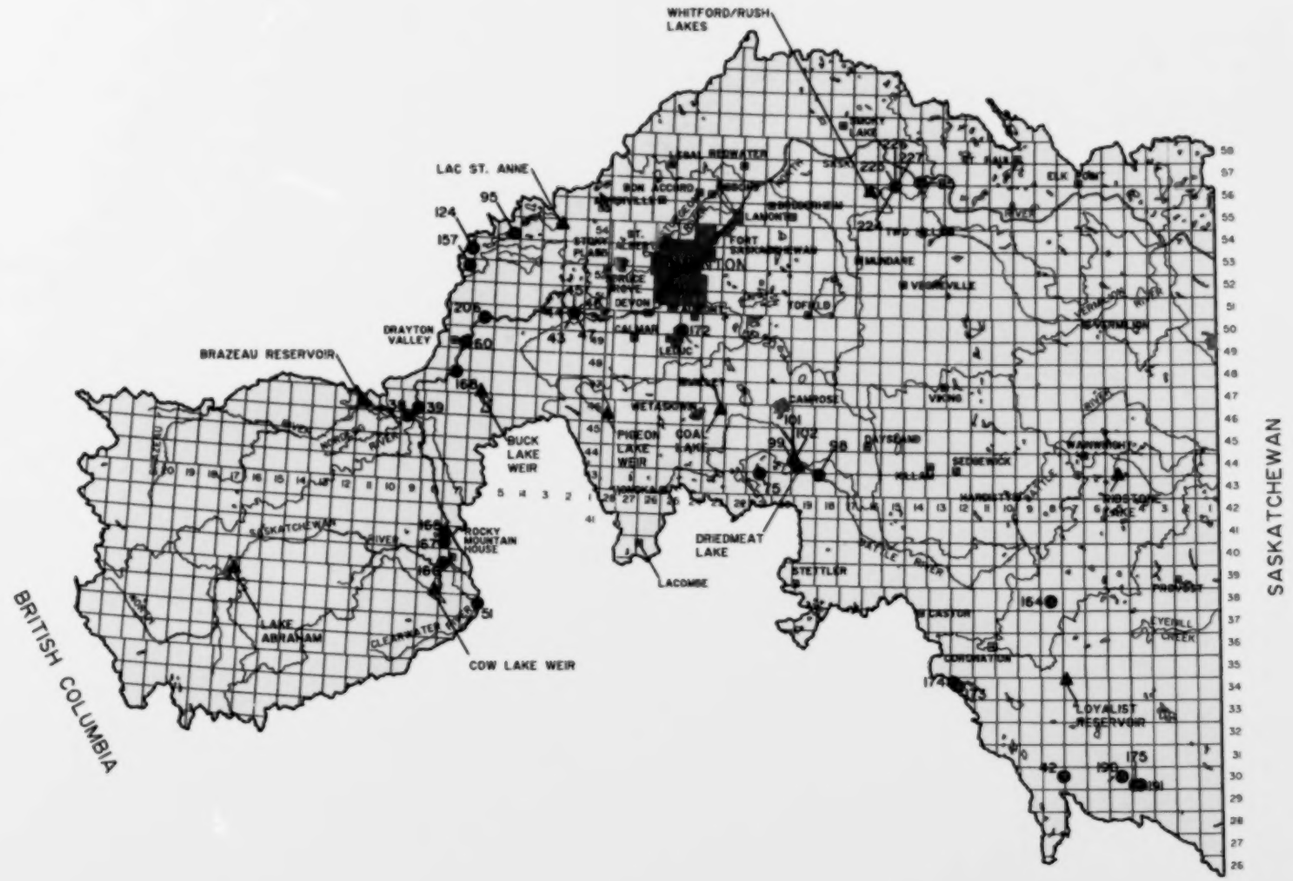
PROVINCIAL INVENTORY OF POTENTIAL WATER STORAGE SITES AND DIVERSION SCENARIOS
NORTH SASKATCHEWAN RIVER BASIN

SCALE: 1:2 500 000	DATE: SEPTEMBER 2005	JOB: 2120-042-00	FIGURE: C6



NORTH SASKATCHEWAN RIVER BASIN

- ● POTENTIAL WATER STORAGE / DIVERSION SITES
- ▲ EXISTING WATER STORAGE / DIVERSION SITES

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ALBERTA ENVIRONMENT

PROVINCIAL INVENTORY OF POTENTIAL WATER STORAGE SITES AND DIVERSION SCENARIOS
NORTH SASKATCHEWAN RIVER BASIN

SCALE: 1:2 500 000	DATE: SEPTEMBER 2005	JOB: 2120-042-00	FIGURE: C6

RED DEER RIVER BASIN

- ● POTENTIAL WATER STORAGE / DIVERSION SITES
- ▲ EXISTING WATER STORAGE / DIVERSION SITES

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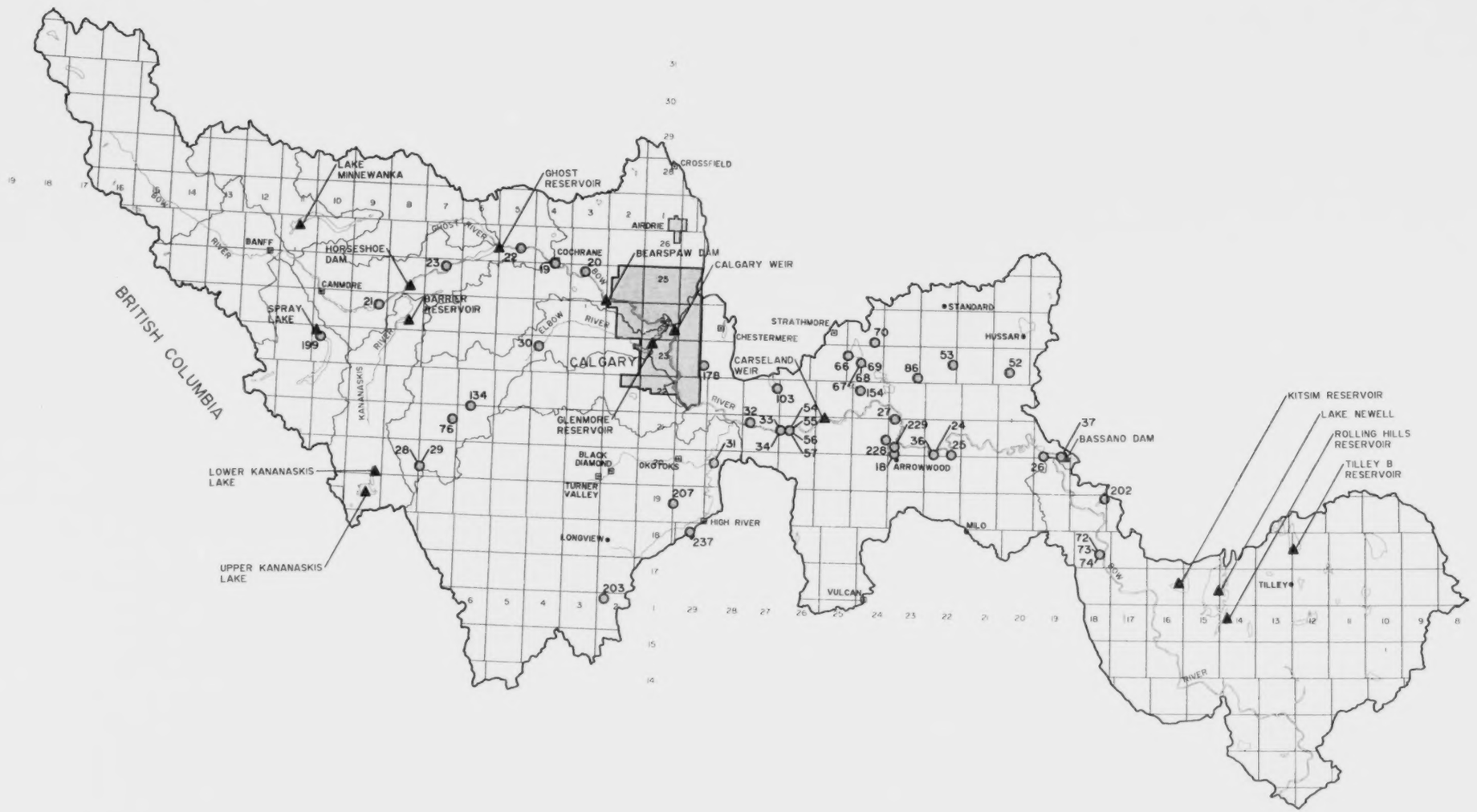
ALBERTA ENVIRONMENT

PROVINCIAL INVENTORY OF POTENTIAL WATER STORAGE SITES AND DIVERSION SCENARIOS
RED DEER RIVER BASIN

SCALE: 1:1 250 000	DATE: SEPTEMBER 2005	JOB: 2120-042-00	FIGURE: C7



BOW RIVER BASIN

- O POTENTIAL WATER STORAGE / DIVERSION SITES
- ▲ EXISTING WATER STORAGE / DIVERSION SITES

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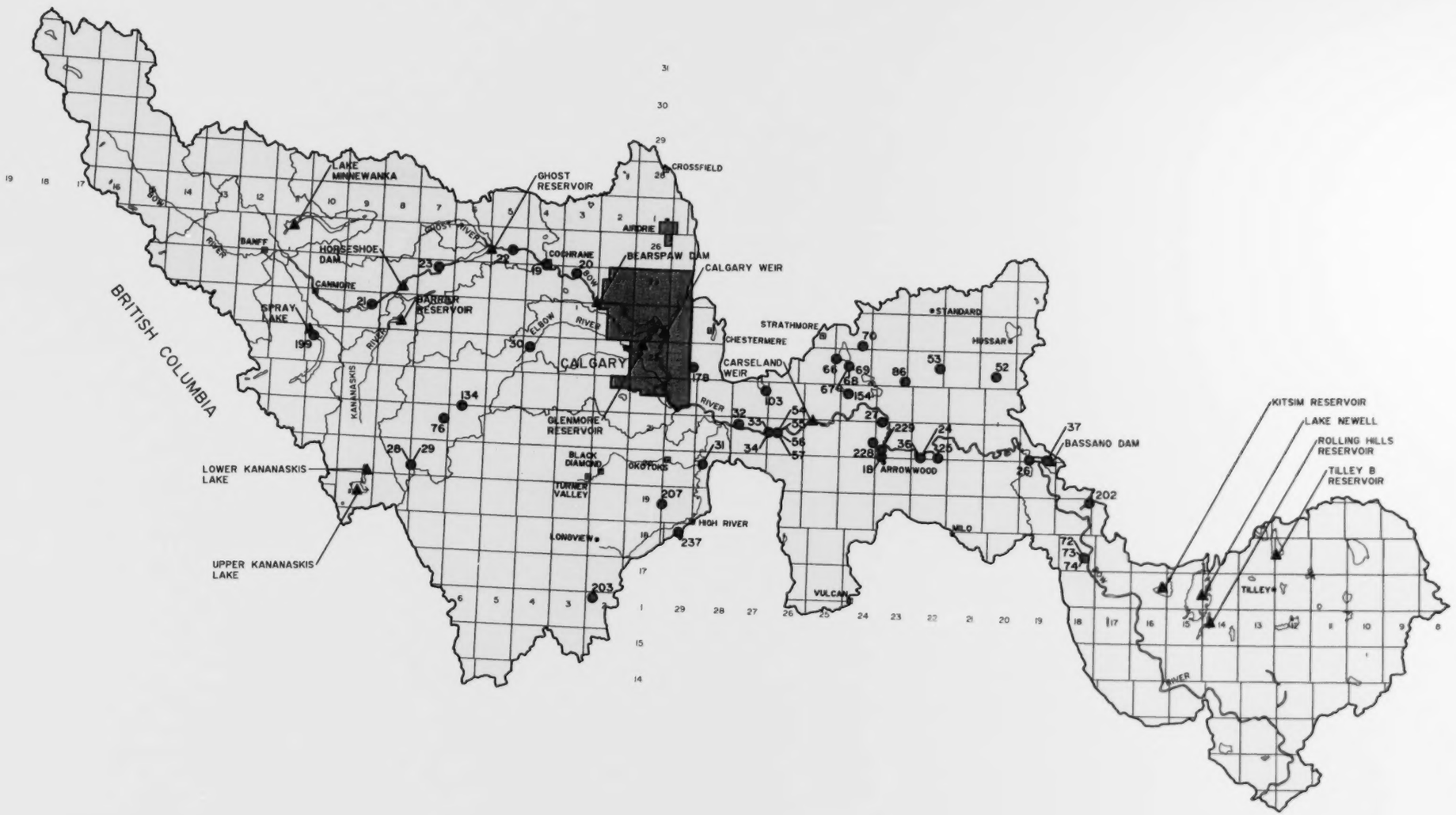
BOW RIVER BASIN

SCALE: 1:1 250 000	DATE: SEPTEMBER 2005	JOB: 2120-042-00	FIGURE: C8



BOW RIVER BASIN

- ● POTENTIAL WATER STORAGE / DIVERSION SITES
- ▲ EXISTING WATER STORAGE / DIVERSION SITES

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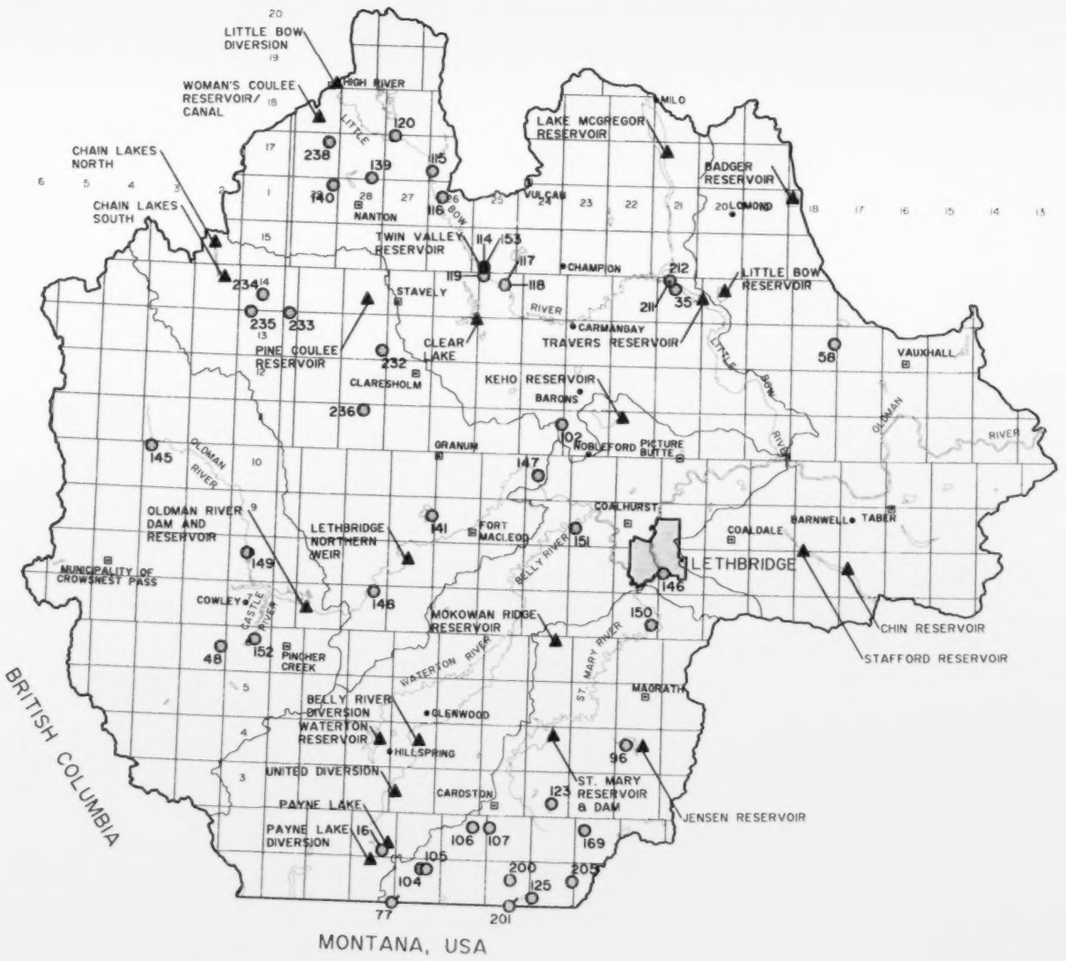
BOW RIVER BASIN

SCALE: 1:1 250 000	DATE: SEPTEMBER 2005	JOB: 2120-042-00	FIGURE: C8



OLDMAN RIVER BASIN

- ○ POTENTIAL WATER STORAGE / DIVERSION SITES
- ▲ EXISTING WATER STORAGE / DIVERSION SITES

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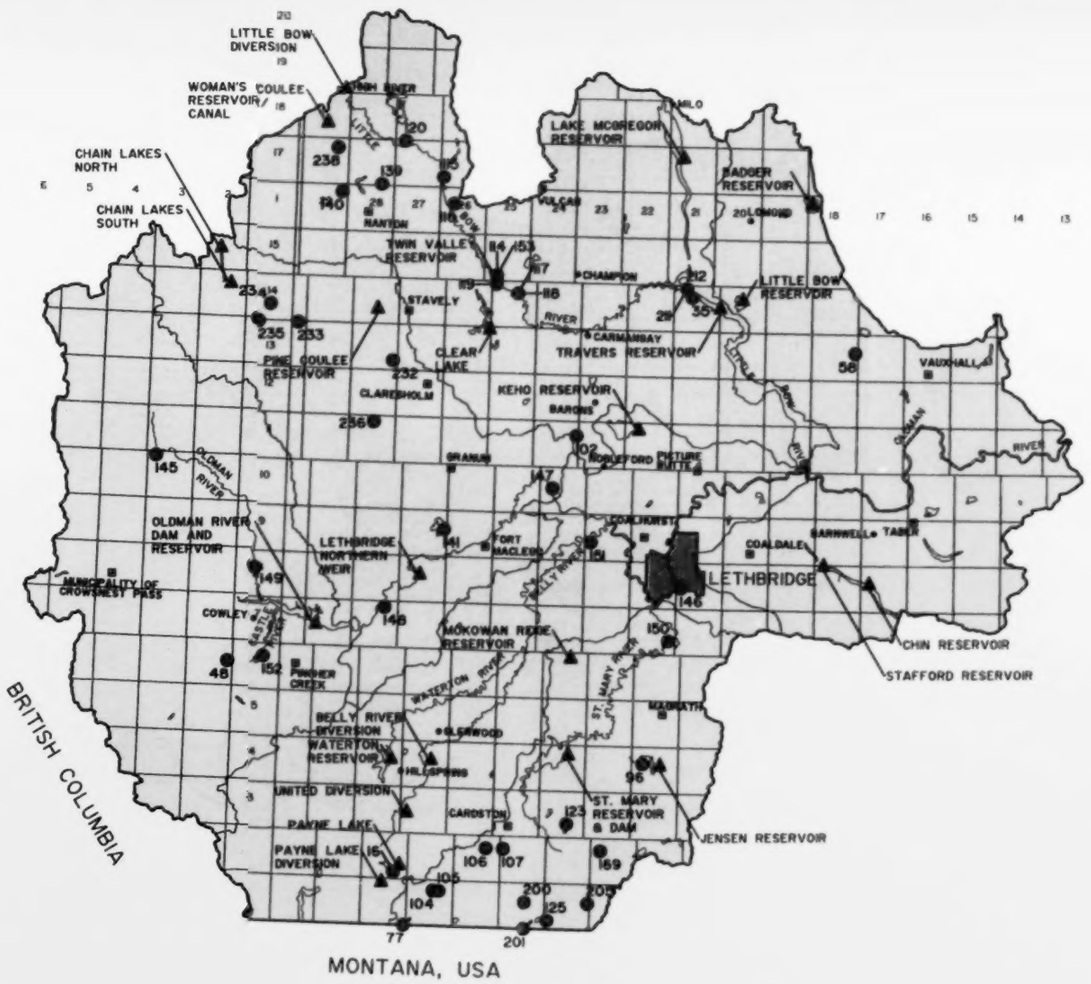
SCALE: 1:1 250 000	DATE: SEPTEMBER 2005	JOB: 2120-042-00	FIGURE: C9



OLDMAN RIVER BASIN

- ● POTENTIAL WATER STORAGE / DIVERSION SITES
- ▲ EXISTING WATER STORAGE / DIVERSION SITES

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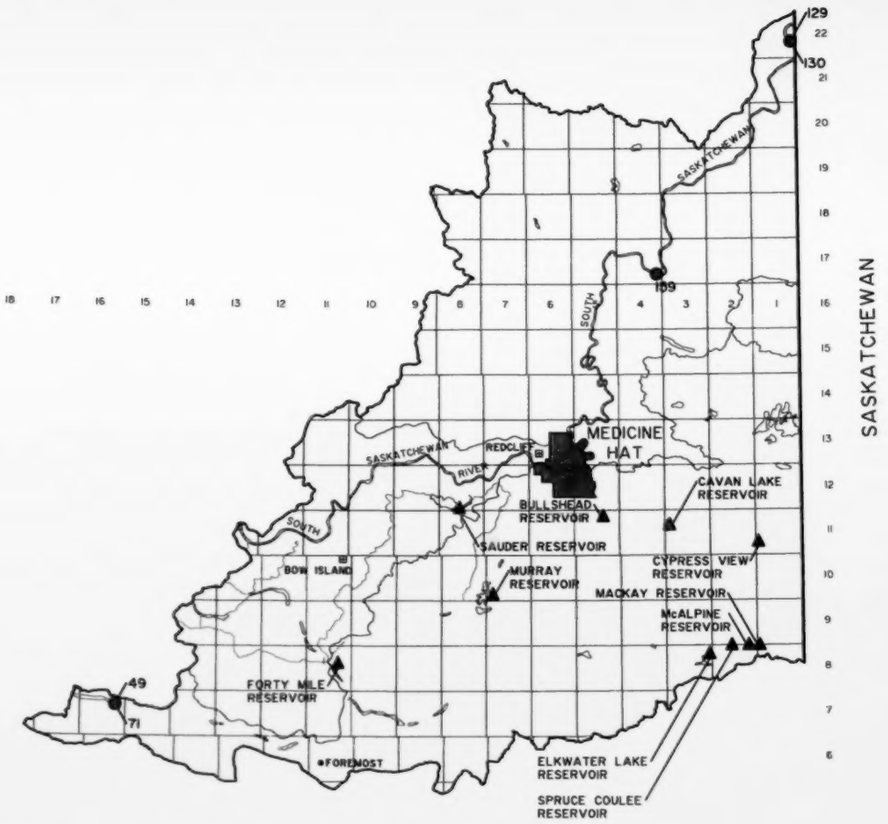
SCALE: 1:1 250 000	DATE: SEPTEMBER 2005	JOB: 2120-042-00	FIGURE: C9



SOUTH SASKATCHEWAN RIVER SUB BASIN

- ● POTENTIAL WATER STORAGE / DIVERSION SITES
- ▲ EXISTING WATER STORAGE / DIVERSION SITES

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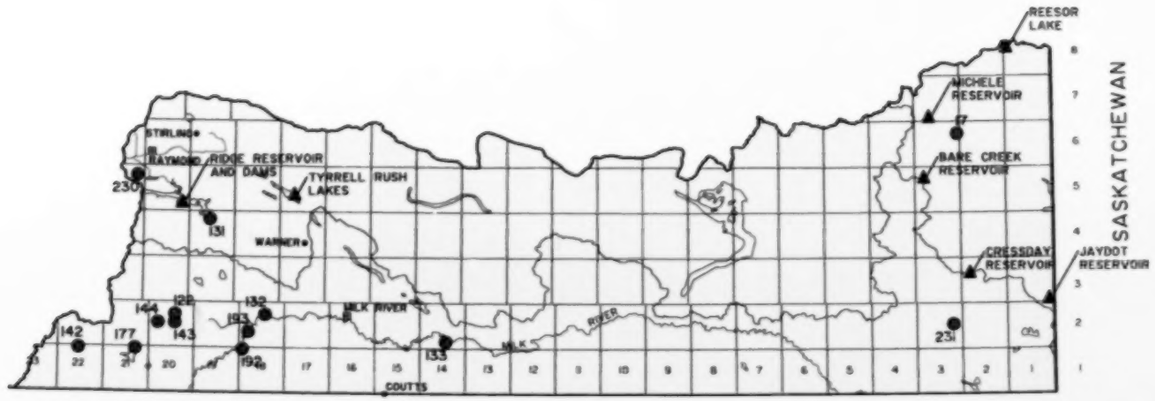
SOUTH SASKATCHEWAN RIVER SUB BASIN

SCALE: 1:1 250 000	DATE: SEPTEMBER 2005	JOB: 2120-042-00	FIGURE: C10



MIILK RIVER BASIN

- ● POTTENTIAL WATER STORAGE / DIVERSION SITES
- ▲ EXISSTING WATER STORAGE / DIVERSION SITES

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ALBERTA ENVIRONMENT

PROVINCIAL INVENTORY OF POTENTIAL WATER STORAGE SITES AND DIVERSION SCENARIOS
MILK RIVER BASIN

SCALE: 1:1 250 000	DATE: SEPTEMBER 2005	JOB: 2120-042-00	FIGURE: CII

DATABASE INSTALLATION

The database must be installed on your hard drive or network server for full functionality.

Step 1 Use *Windows* to create a new folder to store the database.

Step 2 Run the "Database Setup" file from the CD.

Step 3 Browse to select the new folder created in Step 1, then press the Unzip button to install (may take a few minutes).

Step 4 When the Unzip process is complete, close the Zip dialogue box and open the database by opening the *MS Access* application in the newly created database folder.